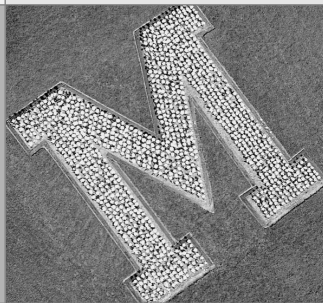


# Undergraduate Catalog 2006/2007



This catalog is a record of official requirements for each degree the university offers as well as the policies of the university that impact undergraduate students. Keep it as a reference manual throughout your years as a student at the University of Maryland.

# Facts & Figures

## University of Maryland Administration

C. D. Mote, Jr., President

William Destler, Senior Vice President  
for Academic Affairs and Provost

Linda Clement, Vice President for  
Student Affairs

Jacques Gansler, Vice President for  
Research

Jeffrey C. Huskamp, Vice President and  
CIO

John Porcari, Vice President for  
Administrative Affairs

Brodie Remington, Vice President for  
University Relations

## Administrative Deans

Judith K. Broida, Associate Provost and  
Dean, Office of Professional Studies

Donna B. Hamilton, Associate Provost  
and Dean for the Office of  
Undergraduate Studies

Charles B. Lowry, Dean of Libraries

Siba Samal, Associate Dean, College of  
Veterinary Medicine, Maryland Campus

Ann G. Wylie, Dean (Interim) of the  
Graduate School



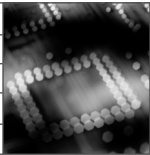
## Athletics at UM

|                               |     |
|-------------------------------|-----|
| Number of Division I sports   | 27  |
| Number of male participants   | 317 |
| Number of female participants | 409 |
| TOTAL                         | 726 |



## Five Most Popular Undergraduate Majors

|                                |
|--------------------------------|
| Criminology & Criminal Justice |
| Government and Politics        |
| Psychology                     |
| Economics                      |
| Finance                        |



## A Snapshot of 2005

| COLLEGES AND SCHOOLS                                       | DEAN               | STUDENT ENROLLMENT  |          |
|--|--------------------|---------------------|----------|
|  |                    | Undergraduate       | Graduate |
| College of Agriculture and Natural Resources               | Cheng-i Wei        | 766                 | 338      |
| School of Architecture, Planning, and Preservation         | Garth Rockcastle   | 208                 | 163      |
| College of Arts and Humanities                             | James Harris       | 3,259               | 1,236    |
| College of Behavioral and Social Sciences                  | Edward Montgomery  | 4,637               | 820      |
| Robert H. Smith School of Business                         | Howard Frank       | 2,771               | 1,465    |
| College of Chemical and Life Sciences                      | Norma Allewell     | 2,317               | 662      |
| College of Computer, Mathematical<br>and Physical Sciences | Stephen Halperin   | 1,320               | 869      |
| College of Education                                       | Edna Szymanski     | 826                 | 1,149    |
| A. James Clark School of Engineering                       | Nariman Farvardin  | 2,652               | 1,650    |
| College of Health and Human Performance                    | Robert S. Gold     | 1,120               | 183      |
| College of Information Studies                             | Jennifer J. Preece | n/a                 | 420      |
| Philip Merrill College of Journalism                       | Thomas Kunkel      | 505                 | 82       |
| School of Public Policy                                    | Steve Fetter       | n/a                 | 199      |
| Undergraduate Studies                                      | Donna B. Hamilton  | 5,018               | n/a      |
| UNDERGRADUATE ENROLLMENT: 25,373                           |                    | MAJORS OFFERED: 127 |          |
| GRADUATE ENROLLMENT: 9,927                                 |                    | DEGREES OFFERED: 91 |          |



## Fear the Turtle!

2005

### ACADEMIC QUALITY

|                                   |     |
|-----------------------------------|-----|
| Top 25 Programs ranked nationally | 92* |
| *as of March 2006                 |     |

### FRESHMAN PROFILE

|                          |           |
|--------------------------|-----------|
| Average High School GPA  | 3.86      |
| SAT 25th/75th Percentile | 1180/1370 |

### RESEARCH

|                                 |        |
|---------------------------------|--------|
| Sponsored research and outreach | \$325M |
|---------------------------------|--------|

### DIVERSITY

|                                      |     |
|--------------------------------------|-----|
| Minority Faculty                     | 16% |
| Minority Students                    | 34% |
| Degrees Awarded to Minority Students | 33% |

### FUNDRAISING

|                 |        |
|-----------------|--------|
| Endowment Value | \$309M |
| Private Giving  | \$122M |

### STATE FUNDING

|  |          |
|--|----------|
| State Appropriation                                | \$327.5M |
| Percent of Budget Funded by State<br>Appropriation | 26%      |

# Statistics 2005/2006



## Where Our Students Live

### STUDENTS LIVING IN UNIVERSITY-OWNED RESIDENCE HALLS

|                    |       |
|--------------------|-------|
| New Freshmen       | 3,863 |
| Transfers          | 136   |
| Returning Students | 6,624 |

|       |        |
|-------|--------|
| TOTAL | 10,623 |
|-------|--------|

### STUDENTS LIVING IN PUBLIC/PRIVATE HOUSING PARTNERSHIPS

|                       |       |
|-----------------------|-------|
| University Courtyards | 704   |
| South Campus Commons  | 1,825 |

|       |       |
|-------|-------|
| TOTAL | 2,529 |
|-------|-------|

### STUDENTS LIVING IN UNIVERSITY-OWNED GREEK HOUSING

|       |     |
|-------|-----|
| TOTAL | 785 |
|-------|-----|

### STUDENTS WHO COMMUTE

|       |        |
|-------|--------|
| TOTAL | 14,462 |
|-------|--------|

## Undergraduate Students by Ethnicity

| RACE/ETHNICITY             | TOTALS | %     |
|----------------------------|--------|-------|
| Black/African American: US | 3,181  | 12.5% |
| Asian: US                  | 3,477  | 13.7% |
| Hispanic: US               | 1,446  | 5.7%  |
| American Indian: US        | 93     | .4%   |
| White: US                  | 14,407 | 56.8% |
| Foreign                    | 567    | 2.2%  |
| Unknown: US                | 2,202  | 8.7%  |



## Five Foreign Countries from Which Most International Students Originate

|        |
|--------|
| China  |
| India  |
| Korea  |
| Taiwan |
| Turkey |

## Did You Know?

- At the University of Maryland, we have at least one undergraduate student from every U.S. state and territory.
- Minorities comprise 34 percent of the undergraduate student population at Maryland.
- As of March 2006, *U. S. News &World Report* ranks 92 programs at the University of Maryland among the top 25 in the nation.



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| Aerospace Engineering (ENAE).....   | 81          |
| African American Studies (AASP) .....   | 82          |
| Agricultural Sciences, General (GNAS) .....   | 84          |
| Agricultural and Resource Economics (AREC) .....  | 84          |
| American Studies (AMST) .....   | 85          |
| Animal Sciences (ANSC) .....  | 86          |
| Anthropology (ANTH) .....   | 87          |
| Applied Mathematics and Scientific Computation (AMSC) .....   | 88          |
| Architecture, Planning and Preservation (ARCH) .....  | 51          |
| Art (ARTT) .....  | 89          |
| Art History and Archaeology (ARTH) .....  | 90          |
| Asian and East European Languages and Cultures<br>(See SLLC) .....  | 128         |
| Astronomy (ASTR) .....  | 90          |
| Atmospheric and Oceanic Science (AOSC).....   | 91          |
| Biological Resources Engineering (ENBE) .....   | 91          |
| Biological Sciences Program .....   | 93          |
| Biology (BIOL).....   | 93          |
| Business, General (BMGT) .....  | 61          |
| Cell Biology and Molecular Genetics (CBMG) .....  | 94          |
| Central European, Russian, and Eurasian Studies (CERE) .....  | 94          |
| Chemical and Biomolecular Engineering (ENCH) .....  | 95          |
| Chemistry and Biochemistry (CHEM, BCHM) .....   | 96          |
| Civil and Environmental Engineering (ENCE) .....  | 97          |
| Classics (CLAS, GREK, LATN) .....   | 100         |
| Communication (COMM) .....  | 101         |
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| Computer Engineering (ENCP) .....   | 102         |
| Computer Science (CMSC) .....   | 104         |
| Counseling and Personnel Services (EDCP) .....  | 105         |
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|   |     |
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| Decision and Information Technologies .....                 | 59  |
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| Electrical Engineering (ENEE) .....                         | 111 |
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| Environmental Science and Policy (ENSP) .....               | 115 |
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| Journalism (JOUR) .....                                     | 72  |
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| Landscape Architecture (LARC) .....                         | 126 |
| Languages, Literatures and Cultures, School of (SLLC) ..... | 127 |
| Linguistics (LING) .....                                    | 131 |
| Logistics, Business and Public Policy .....                 | 60  |
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|   |     |
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| Asian American Studies (AASST) .....                        | 75  |
| Computational Science (See Applied Mathematics) .....       | 88  |
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### 2006-2007 ACADEMIC CALENDAR

#### SUMMER SESSION I, 2006

|                            |         |
|----------------------------|---------|
| First Day of Classes ..... | June 5  |
| Holiday .....              | July 4  |
| Last Day of Classes.....   | July 14 |

#### SUMMER SESSION II, 2006

|                           |           |
|---------------------------|-----------|
| First Day of Classes..... | July 17   |
| Last Day of Classes ..... | August 25 |

#### FALL SEMESTER, 2006

|  |                |
|--|----------------|
| First Day of Classes .....               | August 30      |
| Thanksgiving Recess.....                 | November 23-24 |
| Last Day of Classes .....                | December 12    |
| Study Day .....                          | December 13    |
| Final Examinations.....                  | December 14-20 |
| Main Commencement Ceremony ..            | December 20    |
| College Commencement<br>Ceremonies ..... | December 21    |

#### WINTER TERM, 2007

|                            |            |
|----------------------------|------------|
| First Day of Classes ..... | January 2  |
| Holiday .....              | January 15 |
| Last Day of Classes .....  | January 22 |

#### SPRING SEMESTER, 2007

|                                      |             |
|--------------------------------------|-------------|
| First Day of Classes .....           | January 24  |
| Spring Recess.....                   | March 19-23 |
| Last Day of Classes .....            | May 10      |
| Study Day .....                      | May 11      |
| Final Exams .....                    | May 12-18   |
| Senior Day .....                     | May 19      |
| Main Commencement Ceremony .....     | May 20      |
| College Commencement Ceremonies..... | May 21      |

## GUIDE TO INFORMATION

VISIT MARYLAND'S WEB SITE AT: [www.umd.edu](http://www.umd.edu)

### Publications

**Departmental Brochures:** Small brochures describing many of the departments and programs at the University of Maryland, College Park, are available free. Write to the Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742, or contact the department directly at 301-314-8385.

**Graduate Catalog:** For information, call (301) 314-4198, or write to the Graduate School, Lee Building, University of Maryland, College Park, MD 20742. The online graduate catalog is at: [www.gradschool.umd.edu/catalog](http://www.gradschool.umd.edu/catalog)

**Schedule of Classes:** The *Schedule of Classes* lists course offerings, class times and room assignments, registration dates and procedures, deadlines, fees, and general information. The first edition is available prior to early registration for the spring and fall semesters. The second edition, typically published a few weeks before the beginning of the semester, updates course offerings and registration procedures. The Summer Schedule is available on campus in late January. The schedule is available to all students free of charge and can be picked up at the Mitchell Building, Stamp Student Union, Hornbake Library and McKeldin Library. The *Schedule of Classes* is available online at: [www.testudo.umd.edu/ScheduleOfClasses.html](http://www.testudo.umd.edu/ScheduleOfClasses.html)

**Undergraduate Catalog:** The printed *Undergraduate Catalog* is made available to all students admitted to the university at the time of their Orientation. Copies are also on sale at the University Book Center located in the Stamp Student Union for \$4.95. To purchase a copy contact the Book Center at 301-314-BOOK or e-mail [customerservice@ubcmail.umd.edu](mailto:customerservice@ubcmail.umd.edu). A PDF format version of this catalog is available at [www.umd.edu/catalog](http://www.umd.edu/catalog)

### FREQUENTLY CALLED NUMBERS

|                                  |                |
|----------------------------------|----------------|
| General Information .....        | (301) 405-1000 |
| Admissions (Undergraduate) ..... | (301) 314-8385 |
| Advising .....                   | (301) 314-8418 |
| Financial Services Center .....  | (301) 314-9000 |
| Graduate School .....            | (301) 405-0376 |
| Housing, Off-Campus .....        | (301) 314-3645 |
| Housing, On-Campus .....         | (301) 314-2100 |
| Orientation .....                | (301) 314-8217 |
| Parking/Transportation.....      | (301) 314-PARK |
| Resident Life Registrar.....     | (301) 314-8240 |
| Student Accounts .....           | (301) 405-9041 |
| Summer Term/Winter Term .....    | (301) 405-6551 |
| Undergraduate Studies .....      | (301) 405-9363 |

## GENERAL INFORMATION

### Policy Statements, Residency Classification, and Accreditation

The University of Maryland is an equal opportunity institution with respect to both education and employment. The university does not discriminate on the basis of race, color, religion, national origin, sex, age, or handicap in admission or access to, or treatment or employment in, its programs and activities as required by federal (Title VI, Title IX, Section 504) and state laws and regulations. Inquiries regarding compliance with Title VI of the Civil Rights Act of 1964, as amended, Title IX of the 1972 Educational Amendments, Section 504 of the Rehabilitation Act of 1973, or related legal requirements should be directed to:

Director  
Office of Human Relations  
1130 Shriver Lab - East Wing  
University of Maryland  
College Park, MD 20742  
Telephone: (301) 405-2838

Inquiries concerning the application of Section 504 and part 34 of the C.F.R. to the University of Maryland, College Park, Maryland, may be directed to:

Director  
Disability Support Services  
0126 Shoemaker Hall  
University of Maryland  
College Park, MD 20742  
Telephone: (301) 314-7682 (voice and TTY)  
(301) 314-7209 (for the Deaf and Hard of Hearing Service - DHHS)

In addition to the university's statement of compliance with federal and state laws, the University Human Relations Code notes that the University of Maryland, College Park, affirms its commitments to a policy of eliminating discrimination on the basis of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental disability, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution.

Complete texts of the University Human Relations Code and the Campus Policies and Procedures on Sexual Harassment are printed in Chapter 10, Appendix A and Appendix B.

**Disclaimer:** The provisions of this publication are not to be regarded as a contract between the student and the University of Maryland. Changes are effected from time to time in the general regulations and in the academic requirements. There are established procedures for making changes, procedures which protect the institution's integrity and the individual student's interest and welfare. A curriculum or graduation requirement, when altered, is not made retroactive unless the alteration is to the student's advantage and can be accommodated within the span of years normally required for graduation. The university cannot give assurance that all students will be able to take all courses required to complete the academic program of their choice within eight semesters. Additionally, because of space limitations in limited enrollment programs, the university may not be able to offer admission to all qualified students applying to these programs.

When the actions of a student are judged by competent authority, using established procedure, to be detrimental to the interests of the university community, that person may be required to withdraw from the university. For the complete University of Maryland Code of Student Conduct, see Chapter 10, Appendix C.

**Residency Classification:** For admission, tuition, and charge differential purposes, students are classified as in-state or out-of-state residents. Residency status is initially determined when a student's application for admission is being considered. For more information on the guidelines used to determine residency classification see Chapter 1 and Chapter 10, Appendix H of this catalog.

Questions regarding residency status or petitions for reclassification should be directed to the Residency Classification Office, 1118 Mitchell Building, (301) 405-2030.

**Important Information on Fees and Expenses:** Notwithstanding any other provision of this or any other university publication, the university reserves the right to make changes in tuition, fees, and other charges at any time deemed necessary by the university and the University System of Maryland Board of Regents. Although changes in fees and charges ordinarily will be announced in advance, the university reserves the right to make such changes without prior announcement.

All students who register incur a financial obligation to the university. Those students who register and subsequently decide not to attend must notify the Office of the Registrar Office, 1113 Mitchell Building, in writing, prior to the first day of classes. If this office has not received a request for cancellation by 4:30 p.m. of the last day before classes begin, the university will assume the student plans to attend and accepts his or her financial obligation. After classes begin, students who wish to terminate their registration must follow the withdrawal procedures and are liable for charges applicable at the time of withdrawal.

State of Maryland legislation has established a State Central Collections Unit, and in accordance with state law, the university is required to turn over all delinquent accounts to it for collection and legal follow-up. This is done automatically on a month-to-month basis by computer read-out. Collection costs incurred in collecting delinquent accounts will be charged to the student. The minimum collection fee is 17%, plus any attorney and/or court costs.

**Gender Reference:** The masculine gender whenever used in this document is intended to include the feminine gender as well.

**Smoking Policy:** It is hereby established as the policy of the University of Maryland, College Park, to achieve a public environment as close to smoke-free as practicably possible. See Chapter 10, Appendix E of this catalog for the complete "Smoking Policy and Guidelines."

**Disclosure of Information:** In accordance with "The Family Educational Rights and Privacy Act of 1974" (P.L. 93-380), popularly referred to as the "FERPA," disclosure of student information, including financial and academic, is restricted. Release to anyone other than the student requires a written waiver from the student. (For complete university policy on access to and release of student data/information, see Chapter 10, Appendix D.)

**Accreditation:** The University of Maryland, College Park, is accredited by the Middle States Association of Colleges and Secondary Schools and is a member of the Association of American Universities. In addition, individual colleges, schools, and departments are accredited by such groups as the Accrediting Council on Education in Journalism and Mass Communications, Accreditation Board of Engineering and Technology, American Assembly of Collegiate Schools of Business, American Association for Marriage and Family Therapy, American Chemical Society, American Library Association, American Psychological Association, American Society for Landscape Architecture, American Veterinary Medical Association Council on Accreditation, Commission on Accreditation for Dietetics Education, Commission on Rehabilitation Education, Council for Accreditation of Counseling and Related Educational Programs, Council on Academic Accreditation of the American-Speech-Language-Hearing Association, Council on Education for Public Health, Institute for Food Technologies, National Architectural Accrediting Board, National Association of School Psychologists, National Association of School of Music, National Council for Accreditation of Teacher Education, Planning Accreditation Board, Public Relations Society of America.

**Evaluated Rather Than Accredited:** Maryland Sea Grant College (National Sea Grant Review Panel), Water Resources Center (United States Department of the Interior, U.S. Geological Survey).

**Validated Rather Than Accredited:** Royal Institute of British Architects (RIBA).



## UNDERGRADUATE PROGRAMS OF STUDY

### COLLEGE OF AGRICULTURE AND NATURAL RESOURCES (AGNR)

Agricultural and Resource Economics  
Agricultural Sciences  
Animal and Avian Sciences  
Biological Resources Engineering  
Environmental Science and Policy  
Landscape Architecture  
Natural Resource Management  
Natural Resource Sciences  
Nutrition and Food Sciences

### SCHOOL OF ARCHITECTURE, PLANNING, AND PRESERVATION (ARCH)

Architecture

### COLLEGE OF ARTS AND HUMANITIES (ARHU)

American Studies  
Art  
Art History and Archaeology  
Asian and East European  
Languages and Cultures  
Central European, Russian, and Eurasian  
Studies  
Classics  
Communication  
Comparative Literature Program  
Dance  
English Language and Literature  
French Language and Literature  
Germanic Studies  
History  
Italian Language and Literature  
Jewish Studies  
Linguistics  
Music  
Philosophy  
Romance Languages  
Russian Language and Literature  
Spanish and Portuguese Languages  
and Literatures  
Theatre  
Women's Studies

### COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES (BSOS)

African American Studies  
Anthropology  
Criminology and Criminal Justice  
Economics  
Environmental Science and Policy  
Geography  
Government and Politics  
Hearing and Speech Sciences  
Psychology  
Sociology

### ROBERT H. SMITH SCHOOL OF BUSINESS (BMGT)

Accounting  
Finance  
General Business  
Information Systems  
International Business  
Logistics, Transportation, and Supply  
Chain Management  
Marketing  
Operations Management

### COLLEGE OF CHEMICAL AND LIFE SCIENCES (CLFS)

Biochemistry  
Biological Sciences  
Chemistry  
Environmental Science and Policy  
Microbiology

### COLLEGE OF COMPUTER, MATHEMATICAL, AND PHYSICAL SCIENCES (CMPS)

Astronomy  
Computer Engineering  
Computer Science  
Environmental Science and Policy  
Geology  
Mathematics  
Physical Sciences  
Physics

### COLLEGE OF EDUCATION (EDUC)

Art Education (K-12)  
Early Childhood Education  
Elementary Education  
Secondary Education - English  
Secondary Education - Foreign Language  
Secondary Education - Mathematics  
Secondary Education - Science  
Secondary Education - Social Studies  
Secondary Education - Speech and English  
Secondary Education - Theatre  
and English  
Special Education

### A. JAMES CLARK SCHOOL OF ENGINEERING (ENGR)

Aerospace Engineering  
Biological Resources Engineering  
Chemical Engineering  
Civil and Environmental Engineering  
Computer Engineering  
Electrical Engineering  
Engineering (B.S. in)  
Fire Protection Engineering  
Materials Science and Engineering  
Mechanical Engineering

### COMBINED PROGRAMS

Arts - Dentistry  
Arts - Law  
Biochemistry/Pharmacy  
Animal Science/Veterinary Medicine

### COLLEGE OF HEALTH AND HUMAN PERFORMANCE (HLHP)

Family Studies  
Kinesiological Science  
Physical Education  
Public and Community Health

### PHILIP MERRILL COLLEGE OF JOURNALISM (JOUR)

Journalism

### OFFICE OF UNDERGRADUATE STUDIES (UGST)

Air Force ROTC  
Army ROTC  
College Park Scholars  
Individual Studies Program  
Law and Health Professions  
Pre-Biomedical Science  
Research and Medical  
Technology  
Pre-Dental Hygiene  
Pre-Dentistry  
Pre-Law  
Pre-Medicine (Allopathic,  
Osteopathic, Optometry  
and Podiatry)  
Pre-Nursing  
Pre-Occupational Therapy  
Pre-Pharmacy  
Pre-Physical Therapy  
Pre-Physician Assistant  
Pre-Veterinary Medicine  
University Honors Program

### CERTIFICATE PROGRAMS

African American Studies  
Asian-American Studies  
Computational Science  
East Asian Studies  
International Agriculture and  
Natural Resources  
Latin American Studies  
Lesbian, Gay, Bi-Sexual and  
Transgender Studies  
Science, Technology, and Society  
Secondary Education, Upper Division  
Certificate In  
Women's Studies

### MULTI-COLLEGE PROGRAMS

Computer Engineering (CMPS, ENGR)  
Environmental Science and Policy  
(AGNR, BSOS, CLFS, CMPS)

## CHAPTER 1

# Admission Requirements and Application Procedures

## FRESHMAN ADMISSION

The University of Maryland, College Park, is a publicly supported, land-grant, research institution dedicated primarily to the educational needs of Maryland residents. Within its responsibilities as a state institution, the university attracts a cosmopolitan student body and each year offers admission to a number of promising students from other states and jurisdictions. Currently, all 50 states, the District of Columbia, 3 territories, and more than 150 foreign countries are represented in the undergraduate population. Admission policies are determined by the Board of Regents.

We seek academically successful applicants with diverse backgrounds, geographic origins, and personal experiences, and who demonstrate the potential to contribute significantly to the university's campus and community life. The Admission Committee considers each application for freshman admission individually, reviewing the student's academic record, the rigor of the student's high school academic program, standardized admission test scores, class rank (if available), essay, extracurricular activities, counselor recommendation, and other letters of recommendation. Maryland residency, special talents and/or abilities, personal background, and Maryland alumni/ae affiliation may be taken into consideration.

As prescribed by the Board of Regents, the university expects all applicants, at a minimum, to have completed by high school graduation the following course work: four years of English; three years of mathematics, including Algebra I or Applied Math I and II, Formal Logic or geometry; Algebra II; three years of history or social science; three years of science in at least two different areas with at least two lab sciences; and two years of a foreign language. These criteria represent the minimum requirements to be considered for admission. Successful applicants typically present academic credentials which exceed the minimum, several honors and/or Advanced Placement (AP) or International Baccalaureate (IB) courses, and additional academic electives. A fourth year of mathematics is strongly recommended.

Admission to the University of Maryland is competitive. Each year, we receive more than 22,000 applications for a fall freshman class of 4,025. As a result, we are unable to offer admission to all students who have the ability to be academically successful at Maryland.

### High School Record

In general, the University of Maryland requires freshman applicants to earn a high school diploma prior to their first registration at the university. Applicants should make sure that final high school transcripts are sent to the Office of Undergraduate Admissions prior to enrolling. All offers of admission are contingent upon satisfactory completion of current work.

Each applicant's previous academic achievement is reviewed according to the information available on the student's high school transcript through eleventh grade. In some cases, mid-year grades for the senior year will also be considered. The Admission Committee considers the following academic criteria when evaluating candidates for admission: nature and rigor of course load, grades in academic courses, progress as reflected in grades over time, and performance compared with high school peers. High school grades will be reviewed in the context of the level of course work taken.

## Standardized Admission Test Scores

All freshman applicants must present results from either the ACT with the writing test or the SAT. Test results should be submitted directly to the University of Maryland, College Park, by the American College Testing Program for the ACT or the Educational Testing Service for the SAT. The applicant is strongly urged to include his or her social security number when registering for either test. The social security number will expedite processing of the application for admission. The reporting code for the University of Maryland, College Park, is 1746 for applicants submitting the ACT, and 5814 for those submitting the SAT. The university strongly recommends that these tests be taken as early as possible, but no later than December for priority applicants and January for general applicants. Further information on both tests may be obtained from high school guidance counselors or directly from the American College Testing Program, Iowa City, IA 52243 ([www.act.org](http://www.act.org)) and the Educational Testing Service, Princeton, NJ 08540 ([www.collegeboard.com](http://www.collegeboard.com)).

### Additional Criteria

Priority for admission is given to those students who demonstrate outstanding academic success as measured by the nature and the rigor of their curricula and academic achievements and by their aptitude for college success as evidenced by their performance on nationally normed standardized tests. We also seek to admit students who will contribute to Maryland's campus and community life and look for evidence of this by considering applicants' extracurricular activities and personal backgrounds. The most successful applicants, however, demonstrate a balance of outstanding academic achievement and extracurricular involvement.

Most successful applicants submit the required personal essay, counselor recommendation, and an academic subject area teacher recommendation, a list of extracurricular activities, and response to short answer questions.

### Application Forms

Undergraduate application forms may be requested and submitted on-line via the web at [www.uga.umd.edu](http://www.uga.umd.edu), by calling 1-800-422-5867 or 301-314-8385, by sending an electronic mail message to [um-admit@uga.umd.edu](mailto:um-admit@uga.umd.edu), by writing to the Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742-5235, or by visiting your high school guidance office.

### Application Fee

A non-refundable application fee is required with each application. The fee for U.S. citizens and permanent residents is \$55; the fee for international students and non-immigrants is \$55.

### Fall Semester Freshman Admission

The University of Maryland strongly encourages all applicants to apply by our priority application deadline to assure best consideration for admission, merit scholarships, and invitation to the University Honors Program or College Park Scholars. A completed application includes an official high school transcript, SAT or ACT scores, essay, guidance counselor recommendation form, Part I application form, and application fee.

## 2 Admission Requirements and Application Procedures

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The University utilizes a two part application. Students who submit completed applications by the priority application deadline of December 1 will be mailed a decision letter by mid-February. Students who submit completed applications by the general application deadline of January 20 will be mailed a final admission decision on April 1. Applications received after January 20 are reviewed on a space-available basis. Because of space limitations, the university is unable to offer admission to all qualified applicants.

The following calendar describes the admission process for Fall semester freshman applicants:

|                     |   |
|---------------------|---|
| <b>December 1</b>   | <b>Priority application date:</b> Students who submit their complete applications by this date (postmarked) will receive best consideration for fall admission, merit scholarships, and invitation to University Honors or College Park Scholars. <i>This is not an early decision program; all admitted students have until May 1 to confirm their enrollment.</i> |
| <b>January 20</b>   | <b>General application date.</b> Applications received <i>after</i> this date will be reviewed for admission and decisions released on a rolling, space-available basis.  |
| <b>Mid-February</b> | <b>Admission decisions released to priority applicants by mid-February.</b> Applicants may be admitted, denied, placed on a wait list, or asked to submit first-semester, senior year grades.   |
| <b>February 15</b>  | <b>Priority financial aid application deadline.</b> For more information about need-based financial aid, see chapter 2.   |
| <b>May 1</b>        | <b>Confirmation Date.</b> Deadline (postmarked) for confirming fall enrollment and requesting on-campus housing/meals.  |
| <b>June 1</b>       | <b>Students on wait list notified of final admission decision.</b>  |

### Spring Semester Freshman Admission

The application deadline for Spring semester freshman admission is December 1st. Applications received after this date will be considered on a rolling, space-available basis. The deadline for Spring Freshman admission for U.S. citizens and permanent residents with any foreign academic records is November 1st.

### Financial Aid Applications

The priority financial aid application deadline is February 15. Students seeking financial assistance should apply for financial aid **before** receiving their letter of admission. More information is available about Financial Aid in chapter 2.

### Early Admission Options for High-Achieving High School Students

**Concurrent Enrollment:** Talented high school seniors have the opportunity to enroll at the University of Maryland for two courses, or seven credits, each semester. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. To apply, students must submit: the completed application and fee; high school transcript; an essay explaining why they are interested in the program; a letter of recommendation from the high school; and a letter of permission from the parents or guardian. Students must live within commuting distance. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full.

**Summer Enrollment:** High school students with a strong high school record may be considered for enrollment in courses during the summer preceding their junior or senior year. They must file a regular application for undergraduate admission, including an official high school transcript. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full.

#### Application Deadlines:

Spring: January 2  
Summer: May 1  
Fall: August 1

**Early Admission:** Although the University of Maryland generally requires applicants to earn a high school diploma prior to their first full-time registration, the university will admit a limited number of well-qualified students without high school diplomas. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. Students must be within two credits of high school graduation and have the commitment of the high school to award a diploma after successful completion of the freshman year at Maryland. To apply, students must submit: the completed application and fee, high school transcript and SAT or ACT results, an essay explaining how they will benefit from the program, and a letter of permission from the parents or guardian and a letter of support from the high school. Early admission students are eligible for on-campus housing, scholarships based on academic achievement, the University Honors Program, and College Park Scholars. Early application is advised.

**Gifted Student Admission:** The university will consider for admission a limited number of gifted students who have completed at least the seventh grade. Competitive applicants must have superior academic records as measured by grades and standardized test scores. Students must have an initial conference with a member of the Undergraduate Admissions staff. The Admission staff member may, if it is deemed helpful to the admission decision, make referrals for further assessment to campus counseling services. Students admitted under this category are usually limited to six credits of enrollment per semester.

### Students With Learning Disabilities

The University of Maryland expects that all students admitted to its degree programs will fulfill all of the published requirements for graduation. These requirements are widely published and include fundamental studies in English and mathematics, as well as other general education requirements of the CORE program, and all curriculum requirements of the major program and the degree-granting college or school. Students should not accept an offer of admission with the expectation that any requirement will be waived. For additional information about the admission process for students with documented learning disabilities, please contact the Office of Undergraduate Admissions.

### High School Equivalency Examination (GED)

Maryland residents who are at least 16 years of age and who have not received a high school diploma may be considered for admission provided they have earned the high school General Education Equivalency (GED) certificate. In order to be considered for admission, the applicant must present an above average total score as well as above average scores on each of the five parts of the test.

### Non-Accredited/Non-Approved High School

Students from non-accredited/non-approved high schools who seek admission to the University of Maryland should contact the Office of Undergraduate Admissions for information.

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## ADVANCED PLACEMENT (AP) CREDIT

The University of Maryland encourages applicants to seek AP credit so that academically successful students may move forward in their programs at an appropriate pace. However, credit is not granted for all exams offered by the College Board. Credits are accepted and courses are exempted, based on departmental approval, according to the chart on the following pages. Students should arrange to have their scores sent directly to the University of Maryland from the Educational Testing Service; the code is 5814. Students should also inform their advisors at Orientation that they anticipate receiving AP credit because this information may affect their placement in subject-matter courses.

If a student has already received AP credit at another institution, this credit will be reevaluated. The score received must be equivalent to the minimum score the University of Maryland accepted at the time the test was taken; otherwise, the credit will not be eligible for transfer. AP credits that are accepted are recorded as transfer credit on University of Maryland records and figure in the total number of credits earned toward graduation. Students may not receive AP credit for an equivalent course taken at the University of Maryland or elsewhere. If students earn credit in a course equivalent to an AP exam for which they also earned credit, the AP credit will be deleted from their records. Students should check with their advisors for detailed information on the assignment of AP credit.

2006-2007 University of Maryland Advanced Placement (AP) Exams and Credit Table

| AP Exam Title   | Score                       | Related Course   | Cr                    | Maj                           | Core                            | Notes  |
|---|-----------------------------|--|-----------------------|-------------------------------|---------------------------------|--|
| <b>Art History</b>  | 3, 4, 5                     | ARTH 100   | 3                     | No                            | Yes                             | ARTH 100 fills CORE-Arts requirement. Contact department for placement, 405-1479.  |
| <b>Art</b><br>Art-Drawing<br>Art-General  | 4, 5<br>4, 5                | ARTT 110<br>LL Elective  | 3<br>3                | Yes<br>No                     | No<br>No                        | Students interested in establishing credit for specific courses must submit portfolio for evaluation; call 405-1442.   |
| <b>Biology</b>  | 4<br>5                      | BSCI 105 and<br>LL elective<br>BSCI 105 and<br>BSCI 106                      | 8<br>8                | Yes<br>Yes                    | Yes<br>Yes                      | BSCI fills a major requirement in all Life Sciences; it also fills CORE-Lab (Life) Science requirements. Contact the College of Life Sciences for placement, 405-2080.   |
| <b>Chemistry</b>  | 4<br>5                      | CHEM 131/132<br>CHEM 103/132<br>and<br>CHEM 271                              | 4<br>6                | Yes<br>Yes<br>N/A             | Yes<br>Yes<br>N/A               | CHEM fills a major requirement in all Life Sciences; it also fills CORE-Lab (Physical) Science requirement. Contact department for placement, 405-1791.  |
| <b>Computer Science</b><br>JAVA (2004+) A<br>JAVA (2004+) AB<br>C++ (pre-2004) A<br>C++ (pre-2004) AB | 5<br>4, 5<br>4, 5<br>4<br>5 | LL Elective<br>LL Elective<br>LL Elective<br>LL Elective<br>LL Elective      | 4<br>4<br>4<br>4<br>6 | No<br>No<br>No<br>No<br>No    | No<br>No<br>No<br>No<br>No      | Credit will be given for either the A or the AB exam, not both. Credit may be earned for both the C++ and JAVA exams. Students receiving an acceptable score on the JAVA exam (5 on A, 4 or 5 on AB) are exempt from CMSC131. Contact department for placement, 405-2672.  |
| <b>Economics</b><br>Macroeconomics<br>Microeconomics  | 4, 5<br>3<br>4, 5           | ECON 201<br>ECON 105<br>ECON 200   | 3<br>3<br>3           | Yes<br>No<br>Yes              | Yes<br>Yes<br>Yes               | Economics majors must score 4 or 5 to receive credit toward the major. Either ECON fills one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-3266.   |
| <b>English</b><br>Literature & Comp<br><br>Language & Comp  | 3<br>4, 5<br><br>3<br>4, 5  | LL Elective<br>LL Elective and<br>ENGL 240<br>LL Elective<br>ENGL 101        | 3<br>6<br>3<br>3      | No<br>No<br>Yes<br>No<br>No   | No<br>No<br>Yes<br>No<br>*      | Students with score of 4 or 5 on Lang and Comp exam satisfy CORE-Fundamental Studies Freshman Writing requirement (*ENGL 101). Students with credit for the Language exam may not receive credit for ENGL 291 or its equivalent. ENGL 240 fills CORE-Literature requirement. Contact department for placement, 405-3825.   |
| <b>Env. Science</b>   | 4, 5                        | LL Elective  | 3                     | No                            | Yes                             | ENSP101 fills CORE-Physical Science requirement.   |
| <b>French</b><br>Language<br><br>Literature   | 4<br>5<br><br>4<br>5        | FREN 203<br>FREN 204 and<br>FREN 211<br>FREN 204<br>FREN 204 and<br>FREN 250 | 4<br>6<br>3<br>3<br>6 | No<br>Yes<br>No<br>Yes<br>Yes | Yes<br>Yes<br>Yes<br>Yes<br>Yes | <u>Language</u> : Students with score of 4 who wish to continue should enroll in FREN 204; with score of 5 must enroll in FREN 250 or higher. <u>Literature</u> : Students with score of 4 should enroll in FREN 250; with score of 5 may enroll in 300-level courses. FREN 203, 204 or 211 fills CORE-Humanities requirement; FREN 250 fills CORE-Literature requirement. Contact department for placement, 405-4034. |
| <b>Geography, Human</b>   | 4, 5                        | GEOG 202   | 3                     | Yes                           | Yes                             | GEOG 202 fills one of two CORE-Social/Behavioral Science requirements. Contact department for placement 405-4073.  |
| <b>German</b>   | 4<br>5                      | GERM 203<br>GERM 203 and<br>GERM 204   | 4<br>7                | No<br>No<br>Yes               | Yes<br>Yes<br>Yes               | Students with score of 4 who wish to continue must enroll in GERM 204; with score of 5 must enroll in GERM 220. Contact department for placement, 405-4091.  |
| <b>Gov't &amp; Politics</b><br>United States<br>Comparative   | 3, 4, 5<br>3, 4, 5          | GVPT 170<br>GVPT 280   | 3<br>3                | Yes<br>Yes                    | Yes<br>No                       | GVPT 170 fills one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-4124.   |
| <b>History</b><br>United States   | 4<br>5                      | HIST 156 or<br>HIST 157<br>HIST 156 and<br>HIST 157                          | 3<br>6                | Yes<br>Yes<br>Yes<br>Yes      | Yes<br>Yes<br>Yes<br>Yes        | <u>U.S. History</u> : A score of 4 will be awarded three credits as chosen by the student (HIST 156 or HIST 157). A score of 5 will be awarded six credits (HIST 156 and 157). Either fills CORE-History requirement.  |



## 4 Admission Requirements and Application Procedures

| AP Exam Title                                  | Score   | Related Course                           | Cr | Maj | Core | Notes  |
|--|---------|--|----|-----|------|--|
| <b>History (cont.)</b><br>European             | 4       | HIST 112 or<br>HIST 113                  | 3  | Yes | Yes  | <u>European History:</u> A score of 4 will be awarded 3 credits as chosen by the student (HIST 112 or HIST 113). A score of 5 will be awarded 6 credits (HIST 112 and HIST 113). HIST 112 fills CORE-Humanities requirement; HIST 113 fills CORE-History requirement. <u>World History:</u> fills CORE-History requirement; see department for placement, 405-4272.  |
|  | 5       | HIST 112 and<br>HIST 113                 | 6  | Yes | Yes  |  |
| World  | 4, 5    | HIST 219                                 | 3  | Yes | Yes  |  |
| <b>Latin</b><br>Vergil                         | 4, 5    | LATN 201                                 | 4  | Yes | Yes  | Students with score of 4 or 5 in any AP Latin test may not take LATN201 or lower for credit. Students with score of 4 or 5 in more than one AP Latin test may receive additional credit. Contact department for placement and credit adjustment, 405-2013.   |
| Catullus & Cicero                              | 4, 5    | LATN 201                                 | 4  | Yes | Yes  |  |
| Catullus & Horace                              | 4, 5    | LATN 201                                 | 4  | Yes | Yes  |  |
| Catullus & Ovid                                | 4, 5    | LATN 201                                 | 4  | Yes | Yes  |  |
| <b>Mathematics</b><br>Calculus AB              | 4, 5    | MATH 140*                                | 4  | Yes | Yes  | *MATH 141 may be completed through credit-by-exam. MATH 140 fills both CORE-Fundamental Studies Math requirement and CORE-Math & Formal Reasoning non-lab requirement. Students who receive credit for MATH 140 or 140 & 141 may not receive credit for MATH 220 or 220 & 221. Contact department for placement, 405-5053.   |
| Calculus BC                                    | 4, 5    | MATH 140 and<br>MATH 141                 | 8  | Yes | Yes  |  |
|  |         |  |    | Yes | Yes  |  |
| Calculus BC w/ AB<br>Subscore                  | 4, 5    | MATH 140                                 | 4  | Yes | Yes  | The Calculus BC w/ AP subscore is treated as if the BC exam was the AB exam. Students may not receive AB subscore credit if credit was awarded for the BC exam.  |
| <b>Music</b><br>Listening/Literature<br>Theory | 3, 4, 5 | MUSC 130                                 | 3  | No  | Yes  | MUSC 130 or 140 fills CORE-Arts History/Theory requirement. Majors should contact department for placement, 405-5563.  |
|  | 4, 5    | MUSC 140                                 | 3  | No  | Yes  |  |
| <b>Physics</b><br>Physics B                    | 4, 5    | PHYS 121 and<br>PHYS 122                 | 8  | No  | Yes  | PHYS 121 and 122 fulfill CORE-Lab (Physical) Science requirement. <u>Physics C</u> exams fulfill major requirements in Life Sciences, Engineering, or Physics; they also fulfill the CORE-Lab (Physical) Science requirement. A score of 4 or 5 on the Physics C exams will be awarded four credits as chosen by the student and his/her advisor.<br><br>Students must have credit for AP Calculus BC to take the next course in sequence. Contact department for placement, 405-5979. |
| Physics C<br>Mechanics                         | 4, 5    | PHYS 141 or<br>PHYS 161 or<br>PHYS 171   | 4  | No  | Yes  |  |
|  |         |  |    | Yes | Yes  |  |
| Elec./Magnet.                                  | 4       | PHYS 142 or<br>PHYS 260/1                | 4  | No  | Yes  |  |
|  | 5       | PHYS 142 or<br>PHYS 260/1 or<br>PHYS 272 | 4  | No  | Yes  |  |
|  |         |  |    | Yes | Yes  |  |
| <b>Psychology</b>                              | 4, 5    | PSYC 100                                 | 3  | Yes | Yes  | The AP exam counts towards the 35 required major credits. If a student enters with AP credit, s/he must complete PSYC221 with a grade of B or better. PSYC 100 fills one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-5866.   |
| <b>Spanish</b><br>Language                     | 4       | SPAN 203                                 | 4  | No  | Yes  | <u>Language:</u> Students with score of 4 who wish to continue must enroll in SPAN 204, 211 or 207; with score of 5 must enroll in 300-level courses. <u>Literature:</u> Students with score of 4 or 5 must enroll in 300-level courses. <u>CORE:</u> SPAN 201 or 202 fills CORE-Humanities requirement; SPAN 221 fills CORE-Literature requirement. Contact department for placement, 405-6452.   |
|  | 5       | SPAN 204 and<br>SPAN 207                 | 6  | No  | Yes  |  |
|  |         | SPAN 221                                 | 3  | Yes | No   |  |
| Literature                                     | 4       | SPAN 207 and<br>SPAN 221                 | 6  | Yes | Yes  |  |
|  | 5       |  |    | Yes | Yes  |  |
| <b>Statistics</b>                              | 4, 5    | STAT 100                                 | 3  | *   | Yes  | STAT 100 fills CORE-Fundamental Math requirement and CORE-Math & Formal Reasoning non-lab requirement. * STAT 100 fills program requirements in certain majors. Consult advisor.   |

**Please Note:** LL refers to courses at the lower (100 and 200) level. Students may not receive credit for AP courses and for equivalent UMCP courses or transfer courses (including IB or CLEP). Credit will be deleted in such cases. Decisions about applicability of courses to CORE are updated on an ongoing basis. Consult Schedule of Classes for most recent information. Native speakers may not earn AP credit for the French, German or Spanish language exams.

**2006-2007 University of Maryland International Baccalaureate Exams (IB) and Credit Table**

| IB Exam Title   | Score  | Related Course   | Cr  | Maj   | Core  | Notes  |
|---|--|--|---|---|---|--|
| <b>Anthropology</b><br>Higher   | 5, 6, 7  | See Notes  |   |   |   | Under review. Students interested in Anthropology should contact an advisor for placement.   |
| <b>Art Design</b><br>Higher   | 5, 6, 7  | See Notes  |   |   |   | Under review. Students interested in Art should contact an advisor for placement.  |
| <b>Biology</b><br>Higher<br>Higher  | 5<br>6, 7  | LL Elective<br>BSCI 105 & LL Elective  | 4<br>8  | No<br>Yes   | No<br>Yes   | BSCI 105 fills a major requirement in all Life Sciences; also fills CORE-Lab (Life) Science requirement. Contact the College of Life Sciences for placement, 405-2080.   |
| <b>Chemistry</b><br>Either<br>Either  | 5<br>6, 7  | CHEM 131 & CHEM 132<br>CHEM 131 & CHEM 132 &<br>CHEM 271   | 4<br>6  | Yes<br>Yes<br>Yes   | Yes<br>Yes<br>No  | CHEM fills requirement for all Life Science majors; also fills CORE-Lab (Physical) Science requirement. Contact department for placement, 405-1791.  |
| <b>Computing</b><br>Higher  | 5, 6, 7  |  | 3   |   | No  | Contact department for placement, 405-2672.  |
| <b>Economics</b><br>Either<br>Either  | 5<br>6, 7  | ECON 205<br>ECON 200 & ECON 201  | 3<br>6  | <br>Yes   | Yes<br>Yes  | ECON majors must score 6 or 7 to receive credit toward major. ECON fills one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-3266.   |
| <b>English A/B</b><br>Higher  | 5, 6, 7  | ENGL 240   | 3   | Yes   | Yes   | ENGL 240 satisfies CORE-Literature requirement. Contact department for placement, 405-3825.  |
| <b>Env. Studies</b><br>Higher   | 6, 7   | See Notes  | 3   |   |   | Under review. Students interested in Environmental Science or Policy should contact an advisor for placement.  |
| <b>French</b><br>Standard<br>Standard<br><br>Higher<br>Higher   | 5<br>6, 7<br><br>5<br>6, 7   | FREN 203 or FREN 204<br>FREN 204 &<br>FREN 211<br>FREN 204 & FREN 250<br>FREN 204 & FREN 250 &<br>FREN 211   | 4<br>6<br><br>6<br>9                                | No<br>Yes<br>No<br>Yes<br>Yes<br>No                                       | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes                                    | <u>Standard</u> : Students with score of 5 who wish to continue should enroll in FREN 204; with score of 6 or 7 should enroll in FREN 250 or higher level courses. <u>Higher</u> : Students with score of 5, 6 or 7 may enroll in 300-level courses. FREN 203, 204 or 211 fills CORE-Humanities requirement; FREN 250 fills CORE-Literature requirement. Contact department for placement, 405-4034. |
| <b>Geography</b><br>Either  | 5, 6, 7  | GEOG 100   | 3   | No  | Yes   | GEOG 100 satisfies one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-4053.   |
| <b>German</b><br>Higher<br>Higher   | 5<br>6, 7  | GERM 203<br>GERM 203 & GERM 204  | 4<br>7  | No<br>No  | No<br>No  | Students with score of 5 who wish to continue must enroll in GERM 204; with score of 6 or 7 must enroll in GERM 220. Contact department for placement, 405-4091.   |
| <b>History</b><br>(Higher)<br>Africa<br><br>Americas<br><br>Europe<br><br>E/SE Asia<br><br>Islamic World<br>West Asia | 5<br>6, 7<br>5<br>6, 7<br>5<br>6, 7<br>5<br>6, 7<br>5, 6, 7<br>5<br>6, 7 | HIST 122 or HIST 123<br>HIST 122 & HIST 123<br>HIST 156 or HIST 157<br>HIST 156 & HIST 157<br>HIST 112 or HIST 113<br>HIST 112 & HIST 113<br>HIST 284 or HIST 285<br>HIST 284 & HIST 285<br>HIST 120<br>HIST 120<br>HIST 120 & LL Elective | 3<br>6<br>3<br>6<br>3<br>6<br>3<br>6<br>3<br>3<br>6 | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes | A score of 5 will be awarded three credits (as chosen by the student--except for West & South Asia). A score of 6 or 7 will be awarded six credits. All HIST courses listed at left fulfill CORE-History requirement. HIST112 fills CORE-Humanities/ Other. HIST 120, 122, 123, 284 and 285 also fulfill Diversity requirement.  |
| <b>Italian</b><br>Standard<br>Standard<br><br>Higher<br>Higher  | 5<br>6, 7<br><br>5<br>6, 7   | ITAL 203<br>ITAL 204 &<br>ITAL 211<br>ITAL 204 & ITAL 251<br>ITAL 204 & ITAL 251 &<br>ITAL 211   | 4<br>6<br><br>6<br>9                                | No<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes                                     | Yes<br>Yes<br>No<br>Yes<br>Yes<br>No                                      | <u>Standard</u> : Students with score of 5 who wish to continue must enroll in ITAL 204; with score of 6 or 7 may enroll in 300-level courses. <u>Higher</u> : Students with score of 5, 6 or 7 must enroll in 300-level courses. ITAL 203 or 204 fills CORE-Humanities requirement; ITAL 251 fills CORE-Literature requirement. Contact department for placement, 405-4031.                         |

## 6 Admission Requirements and Application Procedures

| IB Exam Title           | Score   | Related Course                       | Cr | Maj | Core | Notes  |
|-------------------------|---------|--------------------------------------|----|-----|------|--|
| Info. Tech.             |         | See Notes                            |    |     |      | No credit is awarded for this exam at this time.   |
| Latin<br>Either         | 5, 6, 7 | LATN 201                             | 4  | Yes | Yes  | Contact department for placement, 405-2013.  |
| Mathematics<br>Standard | 5, 6, 7 | See Notes                            | 0  | No  | No   | <u>Standard:</u> No credit, but placement in MATH 220 is awarded. <u>Higher:</u> MATH 141 may be completed via credit-by-exam. MATH 140 fills both CORE-Fundamental Studies Math requirement and CORE-Math & Formal Reasoning non-lab requirement. Contact department with questions, 405-5053.  |
| Higher                  | 5, 6, 7 | Math 140                             | 7  | Yes | Yes  |  |
| Music<br>Either         | 5, 6, 7 | MUSC 130                             | 3  | No  | Yes  | MUSC 130 fills CORE-Arts requirement. Majors should contact department for placement, 405-5563.  |
| Philosophy<br>Higher    | 6, 7    | PHIL 100                             | 3  | Yes | Yes  | PHIL 100 fills CORE-Humanities requirement.  |
| Physics<br>Higher       | 6, 7    | See Notes                            | 4  |     | Yes  | Under review; the IB exam fills CORE-Lab (Physical) Science requirement. Contact department for placement, 405-5979.   |
| Psychology<br>Either    | 6, 7    | PSYC 100                             | 3  | Yes | Yes  | The IB exam counts towards the 35 credits required in the major. If a student enters with IB credit, s/he must complete PSYC221 with a grade of B or better. PSYC 100 fills one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-5866.  |
| Spanish<br>Standard     | 5       | SPAN 203                             | 4  | No  | Yes  | <u>Standard:</u> Students with score of 5 who wish to continue must enroll in SPAN 204, 211 or 207; with score of 6 or 7 must enroll in 300-level courses. <u>Higher:</u> Students with score of 5, 6 or 7 must enroll in 300-level courses. SPAN 203 or 204 fills CORE-Humanities requirement. SPAN 221 fills CORE-Literature requirement. Students continuing Spanish study should consult department for placement, 405-6452. |
| Standard                | 6, 7    | SPAN 204 &<br>SPAN 207               | 6  | No  | Yes  |  |
| Higher                  | 5       | SPAN 204 &<br>SPAN 221               | 6  | No  | Yes  |  |
| Higher                  | 6, 7    | SPAN 204 &<br>SPAN 207 &<br>SPAN 221 | 9  | No  | Yes  |  |
|                         |         |                                      |    | Yes | Yes  |  |
| Swahili<br>Either       | 6, 7    | FOLA 159                             | 6  | No  | No   | Elective credit in the FOLA program. Students who wish to continue should contact the FOLA office in Jiminez Hall.   |
| Theatre<br>Higher       | 5, 6, 7 | THET 110                             | 3  | Yes | Yes  | THET 110 fills CORE-Arts requirement. Majors should contact department for placement, 405-6694.  |

**Please Note:** LL refers to courses at the lower (100 and 200) level. Students may not receive credit for IB courses and for equivalent UMCP courses or transfer courses (including AP or CLEP). IB credit will be deleted in such cases. Decisions about applicability of courses to CORE are updated on an ongoing basis. Consult Schedule of Classes for most recent information. Native speakers may not earn IB credit for any language exams.

Students who receive an International Baccalaureate Diploma or Certificate may consider presenting a portfolio to the Freshman Writing Office for review. See [www.inform.umd.edu/ENGL/Programs/FreshmanWriting/Exemptions.html](http://www.inform.umd.edu/ENGL/Programs/FreshmanWriting/Exemptions.html) or call the Freshman Writing Office, 405-3771, for further information.

## Admission Requirements and Application Procedures 7

Please note that the chart represents a general outline of AP credit. In all cases, credit is available only for grades of 3 or higher, subject to ongoing departmental reevaluation. All departments reserve the right to reevaluate the content of exams and to change the assignment of credit and course equivalencies. Any new exams offered after February 15 may or may not be evaluated by the appropriate department. Students should check with their advisor at Orientation.

Certain departments, particularly Mathematics and Physics, have separate criteria for placement in courses and the assignment of credit. Students should check with those departments for additional information. All entering freshmen will be placed in math courses according to the University of Maryland math placement exam.

### International Baccalaureate (IB) Examination Credit

The University of Maryland awards credit to students who sit for International Baccalaureate exams according to the table on the previous page. Interested students should contact the Office of Undergraduate Admissions for additional information.

Note: Credit awards and course equivalencies are subject to change.

## ADMISSION TO LIMITED ENROLLMENT PROGRAMS (LEP)

Certain colleges, schools, and departments within the university have taken steps to limit enrollment in order to maintain quality programs. For the 2006-2007 academic year these included the School of Architecture, Planning and Preservation, Robert H. Smith School of Business, A. James Clark School of Engineering, Department of Government and Politics, Department of Biological Resources Engineering, Philip Merrill College of Journalism, Department of Natural Resource Sciences and Landscape Architecture, Department of Psychology, Department of Communication and College of Education. LEP programs are continually reviewed. Students should check the LEP Web site at [www.lep.umd.edu](http://www.lep.umd.edu) or contact the Limited Enrollment Program Admissions Coordinator at 301-314-8385 for updated information.

**Freshmen:** Admission for new freshmen to Limited Enrollment Programs is competitive. Because space may be limited for a particular major, early application is encouraged. Freshmen who are directly admitted to an LEP will be subject to a performance review when they complete 45 college credits. The review varies from program to program, but always includes satisfactory performance in a set of appropriate courses. Students not passing the review will be required to choose another major. See the academic program description for specific details.

Freshmen not directly admitted to an LEP may be assigned to the Division of Letters and Sciences or to a general major within the LEP college requested. Students are not guaranteed admission to an LEP at a later date, although they may gain admission by meeting the requirements outlined in their particular program by the time they complete 45 or 60 credits at Maryland. See the following section on LEP transfer admission and the LEP program descriptions for further details about this option.

**Transfers:** Transfer students and on-campus students wishing to change their major to an LEP must meet a set of gateway courses with minimum grades in order to be admitted to the program. Space is limited in each program, and the most qualified applicants will be admitted each semester. Additional information for each of the limited-enrollment programs may be found in the descriptions of academic majors in chapters 6 and 7.

Transfer students who are not directly admissible to an LEP upon application to the university will be assigned to an alternate program. Those with fewer than 60 credits will be assigned to the Division of Letters and Sciences, and will be allowed the opportunity to meet the gateway requirements by the time they complete 45 or 60 credits. Students with more than 60 credits will be admitted to an interim program possibly within the LEP college requested where they will be advised regarding their qualifications for the LEP and, in some cases, the need to choose another major.

**Second Major:** Enrolled students interested in adding an LEP as a second major should consult chapter 4.

### Pre-Professional Programs

While professional schools do not require, favor, or prefer specific majors, the pre-professional advisors in the Law and Health Professions Advising Office (LHPAO) of the Division of Letters and Sciences can provide guidance concerning the choice of major. Undecided students may enter the Division of Letters and Sciences, but **must** adhere to the University of Maryland policy, that students declare a degree-granting major by the time they reach 60 credits.

For further information, see the section on “Pre-Professional Advising and Programs” in this catalog and visit [www.ltsc.umd.edu/lawhealth.html](http://www.ltsc.umd.edu/lawhealth.html)

## SPECIAL APPLICANTS

### Golden Identification Card Program

The University of Maryland participates in the Golden Identification Card Program. The institution will make available courses and various services to persons who are 60 years of age or older, who are legal residents of the State of Maryland and who are retired (not engaged in gainful employment for more than 20 hours per week). When persons eligible for this program are admitted to the university, they register on a space-available basis for credit courses as regular or special students in any session and receive a Golden Identification card. Golden ID students must meet all course prerequisite and co-requisite requirements. Tuition is waived for these courses; however, a Golden ID administrative fee is assessed every semester. Golden ID students may register for a maximum of three courses per term. Golden ID students are not eligible for Consortium courses. The Golden Identification Card will entitle eligible persons to certain academic services, including the use of the libraries and the shuttle bus service. Such services will be available during any session only to persons who have registered for one or more courses for that semester. Golden ID students also have the opportunity to become involved with the Golden ID Student Association, which provides cultural and social events, course recommendations, and peer advising. Additional information may be obtained from the Office of Undergraduate Admissions, Ground Floor, Mitchell Building: 301-314-8385, or the Special Programs Office, 1108 Mitchell Building: 301-314-8237.

### Non-Degree Seeking Students

Applicants who qualify for admission but do not desire to work toward a baccalaureate degree may be admitted as non-degree-seeking students.

Non-degree-seeking students who have received a baccalaureate degree are advised that no credit earned while enrolled may be applied at a later date to a graduate program. These post-baccalaureate students may enroll in undergraduate courses for which they possess the necessary prerequisites, but may not enroll in courses restricted to graduate students only. Students who wish to take courses at the graduate level (600 and above) must contact the Graduate School for information concerning admission requirements for Advanced Special Student status.

Non-degree-seeking students who do not have a baccalaureate degree must submit transcripts and meet regular admission standards. Transcripts are not required from students with baccalaureate degrees from a regionally accredited institution. Because of space limitation, several departments require permission be given in advance to register for classes as a non-degree student. Please contact the Office of Undergraduate Admissions for further information.

Non-degree-seeking students who are taking classes to transfer immediately back to another institution may apply without academic transcripts. These applicants must, in lieu of transcripts, submit official documentation from that institution granting permission to take course work at the University of Maryland for that particular semester.

### Returning Students and Veterans

Applicants who have not attended school for more than five years, or who have had military experience, should contact both an admissions counselor and the Returning Students Program: 301-314-7693. Veterans should also contact the Veterans Affairs Office: 301-314-8239.

## 8 Admission Requirements and Application Procedures

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Students returning to the University of Maryland after a separation of five calendar years may petition the appropriate dean to have a number of grades and credits from courses previously taken at the University of Maryland, College Park, removed from the calculation of their cumulative grade point averages and from the credits applied toward graduation requirements. The information on academic requirements and regulations is in chapter 4.

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### INTERNATIONAL STUDENT ADMISSION

The University of Maryland seeks to enroll international students who demonstrate strong academic performance with records suggesting potential for success at Maryland. Admission is competitive and is offered to applicants whose academic credentials indicate marks of “very good” to “excellent.” Due to space limitations and the competitive nature of undergraduate admission at the University of Maryland, an international applicant should submit a complete application as early as possible, and always before the deadlines listed in this section. Applications completed after a deadline will not be considered for that semester, but will be reviewed for the following semester. Evaluation of an applicant’s credentials will take place only after all application materials are received. Decisions are released in writing on a rolling basis.

Applicants currently holding or intending to seek an F-1 Student or J-1 Exchange Visitor visa to study in the United States are considered international applicants and should observe the following instructions. All other non-immigrant visa holders (including A, E, G, H, I, and L) should follow the Freshman and Transfer instructions preceding and following the International Student Admission section of the catalog.

#### Freshman Admission - International

You are considered a freshman applicant if you have completed fewer than 12 semester hours of university-level credit past secondary school at the time you plan to enter the University of Maryland. Successful freshman applicants demonstrate satisfactory completion of diverse college-preparatory subjects in secondary school, proficiency in English, and evidence of sufficient funds to cover all expenses. Due to space limitations, we are unable to offer admission to all students who have the ability to be successful academically at the University of Maryland.

The Fall (August) deadline for applications to be received is December 1. The Spring (January) general deadline is August 1.

All of the following documents must be submitted before the freshman final deadline for an applicant to be considered for undergraduate admission: International Student Application for Undergraduate Admission; nonrefundable application fee (U.S. \$55.00); official secondary school transcripts in native language with certified literal English translations and, where appropriate, official results and certificate of completion from a national secondary school examination; all official university or college transcripts in native language with certified literal English translations (if any); proof of English proficiency; SAT or ACT official results (if three or more years of high school completed in U.S.); statement of activities; an essay; and Certification of Finances, including supporting documents that demonstrate support of U.S. \$33,595 per year. Current F-1 and J-1 Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record, visa stamp, and current I-20 or DS-2019 form. Current other non-immigrant Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record and visa stamp.

#### Transfer Admission - International

You are considered a transfer applicant if you have completed 12 or more semester hours of university-level credit past secondary school at the time you plan to enter the University of Maryland. Successful transfer applicants demonstrate better than average grades in strong academic courses, proficiency in English, and evidence of sufficient funds to cover all expenses. Due to space limitations, we are unable to offer admission to all students who have the ability to be academically successful at the University of Maryland.

The Fall final deadline for applications to be received is March 1. The Spring (January) final deadline is August 1.

All of the following documents must be submitted before the transfer final deadline for an applicant to be considered for undergraduate admission: International Student Application for Undergraduate Admission; nonrefundable application fee (U.S. \$55.00); all official university or college transcripts in native language with certified literal English translations; proof of English proficiency; statement of activities; and Certification of Finances, including supporting documents that demonstrate support of U.S.

\$33,595 per year. Current F-1 and J-1 Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record, visa stamp, and current I-20 or DS-2019 form. Current other non-immigrant Visa Holders must also provide photocopies of their I-94 Arrival/Departure Record and visa stamp. Students with fewer than 30 semester hours must also provide official secondary school transcripts in native language with certified literal English translations and, where appropriate, official results and certificate of completion from a national secondary school examination.

#### English Proficiency

Non-native English speakers (regardless of citizenship) who seek admission to the University of Maryland must verify their proficiency in English by taking and submitting an official score report from one of the following English proficiency exams: TOEFL (Test of English as a Foreign Language); or IELTS (International English Language Test System). Those whose native language is English, who earn an SAT critical reading score of 480 or higher, or who have earned a post-secondary degree from a university in an English-speaking country do not need to take or submit scores from an English proficiency exam. Transfer credit for an English composition course does not waive the English proficiency exam.

#### Visa Records

Applicants Residing Outside of the United States: To enter the United States, international students residing abroad will need a passport from their government and a visa from the U.S. Consulate. In order to obtain a visa for the purposes of studying in the United States, the applicant must present a Certificate of Eligibility form to the U.S. Consulate. The university will issue this form to admitted students who have submitted proof of having sufficient funds to cover the cost of a program of study. Admitted students with personal, family, or other source of private funding will be issued the Certificate of Eligibility form I-20 in order to obtain the F-1 Student Visa. Admitted students who are sponsored by agencies, foundations, or their home government, or are participating in an established exchange program may be issued the Certificate of Eligibility form DS-2019 in order to obtain the J-1 Exchange Visitor Visa.

Applicants Currently Residing in the United States: Applicants currently holding F-1 Student or J-1 Exchange Visitor status in the United States need to submit a photocopy of their I-94 Arrival/Departure Record, visa stamp, and current I-20 or DS-2019 form along with proof of having sufficient funds to cover the cost of a program of study. Applicants holding another type of non-immigrant status need to submit a photocopy of their I-94 Arrival/Departure Record and visa stamp, and must indicate if they intend to seek a change to F-1 Student or J-1 Exchange Visitor status. Upon admission and submission of the appropriate financial support documentation, the university will issue the appropriate Certificate of Eligibility form (I-20 or DS-2019) to the student.

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### TRANSFER ADMISSION

A student who has attended any regionally accredited institution of higher education following graduation from high school and attempted 12 or more credits will be considered for admission as a transfer student. Transfer applicants must be in good academic and disciplinary standing at their previous institutions to be eligible for transfer to the University of Maryland.

When the number of students desiring admission exceeds the number that can be accommodated at this institution, or in a particular professional or specialized program, admission will be based on the overall strength of the student’s academic performance.

#### Requirements

Admission for transfer applicants is primarily based on the number of credits a student has earned and academic achievement for all college-level work. In calculating eligibility, the university will use the average stated on the transcript by the sending institution. When an applicant has attended more than one institution, a cumulative average for all previous college work attempted will be computed. To be considered, course work must have been completed at a regionally accredited college or university. All students with grade point averages below 3.0 will be considered on a space-available basis. Students who were not admissible as high school seniors must complete at least 30 semester hours with the grade point average as stated above. In accordance with Maryland Higher Education Commission and Board of Regents transfer policies, applicants from Maryland public institutions are, in some instances, given special consideration, and, when qualified and space is available, may be admitted with a cumulative grade point average of 2.0 or higher.

## Admission Requirements and Application Procedures 9

### Application Dates

| <b>Semester</b>      | <b>Date</b>  |
|----------------------|--|
| <b>Spring</b>        | November 15 (November 1 with any foreign academic records) |
| <b>Fall Priority</b> | March 1  |
| <b>Fall</b>          | June 1 (April 30 with any foreign academic records)        |

### Transfer from Maryland Public Institutions

Currently, applicants who have attended Maryland public Institutions may be admitted in accordance with the criteria outlined in the previous paragraph. The university subscribes to the policies set forth in the Maryland Higher Education Commission and Board of Regents transfer policies. When the number of students desiring admission exceeds the number that can be accommodated in a particular professional or specialized program, admission will be based on criteria developed by the university to select the best qualified students.

Articulated transfer programs are available at each Maryland community college. An articulated transfer program is a list of courses that best prepare applicants for a particular course of study at the University of Maryland. Applicants who take appropriate courses specified in the articulated program and earn acceptable grades are guaranteed transfer with no loss of credit. Articulated transfer programs help students plan their new programs after changing career objectives. Computerized articulation information, called ARTSYS, is available at the Office of Undergraduate Admissions at the University of Maryland, in the transfer advisor's office at each of the community colleges, and at all other Maryland public institutions. Applicants can eliminate all doubt concerning transfer of courses by following articulated programs.

### General Transfer Information

Admitted students will receive a preliminary review of transfer credit within two weeks after receiving the letter of admission. An official review of transfer credit occurs thereafter, with final determination of applicability made by an academic advisor/evaluator in the office of the appropriate dean for the major. Generally, college-level courses completed at regionally-accredited institutions will transfer provided that grades of at least "C" (2.0) are earned and the course is similar in content and scope to work offered at Maryland. The regional accrediting bodies are Middle States Association of Colleges and Schools, New England Association of Schools and Colleges, North Central Association of Colleges and Schools, Northwest Association of Schools and Colleges, Southern Association of Colleges and Schools, and Western Association of Schools and Colleges. Up to 60 credits from a community or two-year college, and 90 credits from a four-year college, may be applied toward the degree. Students are required to complete at least their final 30 credits at Maryland to earn a Maryland degree.

Transfer of course work completed at Maryland public colleges and universities is covered by the Maryland Higher Education Commission (MHEC) transfer policies (see complete text later in this section). Maryland will accept grades of "D" or better from appropriate course work completed at a regionally-accredited Maryland public institution, including other institutions in the University System of Maryland.

The Transfer Credit Center provides articulation information and assistance to students and transfer advisors. The Center, a joint effort between the Offices of Undergraduate Admissions and the Office of the Registrar, has computerized and consolidated the transfer credit evaluation process. It provides incoming students from domestic institutions with information on acceptability of credits and transfer equivalencies, subject to adjustment by advisors within the student's individual program. Certain courses (e.g., those not appearing or not fully elaborated in the sending institution's current catalog) may require additional information such as syllabi, portfolios, etc., before evaluation.

Information on transferability of specific courses to the University of Maryland, College Park may be accessed on the web at [www.tce.umd.edu/TCE/](http://www.tce.umd.edu/TCE/).

Each college-level course will be evaluated individually, with applicability toward major or general education requirements determined by the appropriate academic unit. The university does not transfer blocks of courses, such as those completed through the Associate's Degree. See the appropriate sections of the catalog for specific general education and major requirements.

Credit will be posted to your Maryland record only from official transcripts sent from the institution at which the credit was completed. Students who have earned credit through Advanced Placement (AP), International Baccalaureate (IB), or College-Level Examination Program (CLEP) subject area exams must have scores sent directly from the testing board, even if they are already posted on a transcript from another institution.

| <b>SOURCE</b>  | <b>ACCEPT CREDITS?</b>  | <b>EQUIVALENT OR REQUIRED CREDITS</b> | <b>GRADES/SCORES WHERE APPROPRIATE</b>                     |
|--|---|---------------------------------------|--|
| <b>Note: Some transfer credit policies are under review. Please call Undergraduate Admissions for current information.</b> |   |                                       |  |
| ACE Non-Collegiate Courses   | No  |                                       |  |
| Advanced Placement Program (CEEB)  | Yes   | E or R <sup>1</sup>                   | 3 or higher (see chart in this chapter)                    |
| CLEP   | Yes   | E or R <sup>1</sup>                   | See chart in Chap. 4                                       |
| Community College of the Air Force   | Yes   | E or R <sup>1</sup>                   | C (2.0) or higher equivalent grade as appropriate to dept. |
| Correspondence courses   | No  |                                       |  |
| Dantes   | No  |                                       |  |
| Defense Language Institute   | Yes   | E or R <sup>1</sup>                   | Scores as appropriate to department                        |
| Departmental exams from other colleges   | Yes   | E or R <sup>1</sup>                   | C (2.0) or higher  |
| International Baccalaureate  | Yes   | E or R <sup>1</sup>                   | 5 or higher (see chart in this chapter)                    |
| Life experience  | No, unless validated through CLEP or University of Maryland, College Park departmental exam   |                                       |  |
| Military credit  | No  |                                       |  |
| Nursing school courses: by transfer/by challenge exam  | No <sup>2</sup>   |                                       |  |
| Other articulation agreements (proprietary schools, public agencies, etc.)   | No, unless a newly-formed Maryland public institution operating under auspices of MHEC  |                                       |  |
| PONSI non-collegiate work  | No  |                                       |  |
| Portfolio credits from other colleges  | No  |                                       |  |
| Tech Prep  | The University of Maryland does not automatically honor course waivers/ exemptions, or award credit granted by other Maryland institutions in accordance with articulation agreements they have made with third parties, including Maryland public high schools, technical learning centers, etc. |                                       |  |

<sup>1</sup> Courses must be similar in depth and scope to University of Maryland courses. Applicability is determined by the appropriate dean.

<sup>2</sup> Professional courses are generally not transferable. Courses taken at a regionally-accredited institution may be reviewed by the appropriate dean.

## 10 Admission Requirements and Application Procedures

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### Statement on Transfer of Course Credit

The University of Maryland welcomes transfer students and has transfer agreements (sometimes referred to as “articulation” agreements) to encourage and aid students in their efforts to take appropriate courses prior to transfer. Each course is evaluated individually for students seeking to transfer to the University of Maryland. Credit is granted for courses that are applicable to a Bachelor of Arts or Bachelor of Science degree, and for which a grade of C or above was earned. Courses completed at Maryland public two- or four-year institutions may be transferred with grades of D or above provided that course content is appropriate to our academic programs.

### Maximum Number of Transfer Credits Accepted

The University of Maryland has direct transfer agreements with all Maryland community colleges, as well as other junior and community colleges outside of the state. The university will accept for transfer a maximum of 60 credits from a two-year program and 90 credits from a four-year program for courses in which a grade of C or above was earned and which are appropriate to an approved curriculum at this institution. See the above paragraph for required course grades.

### Maximum Number of Credits Allowed for Non-Traditional Learning

Students who have acquired college-level learning through work or other non-collegiate activities may wish to translate their experience into credits at Maryland by validation through the national CLEP examination (College-Level Examination Program) or credit-by-examination administered by academic departments. The university will accept a maximum of 30 hours of credit through examination.

### Minimum Number of Credits Required Through Classroom Instruction in the Major Field and for the Degree

The University of Maryland requires a minimum of 120 semester hours of credit for an undergraduate degree; some programs require more. Regardless of the total number of transfer credits, students must complete at least their last 30 credits at the University of Maryland, College Park.

### Statement on Transfer of General Education Requirements

As directed by the Maryland Higher Education Commission Transfer Policy, transferable courses taken in fulfillment of general education requirements at a Maryland public institution will be applied toward Maryland’s CORE requirements. Careful planning with an academic advisor will ensure that students take appropriate credit and maximize their credit transfer. The total number of general education credits for a Maryland public institution transfer or post baccalaureate credits will not exceed that required of native students.

### Transfer credit Policy Maryland Higher Education Commission (Title 13B)

See Chapter 10, Appendix N, for complete policy

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## RESIDENCY INFORMATION

Residency Classification Office, 1130 Mitchell Building  
301-314-9596; Fax: 301-314-7915  
E-mail: [resclass@deans.umd.edu](mailto:resclass@deans.umd.edu)  
[www.testudo.umd.edu/rco](http://www.testudo.umd.edu/rco)

Petitions, related documents, self-test checklist, deadline information, and questions concerning the residency policy of the University of Maryland for the determination of in-state status should be directed to the Residency Classification unit in the Office of the Registrar.

### Determination of In-State Status for Admission, Tuition, and Charge Differential Purposes: See Chapter 10, Appendix H in this catalog for the complete text of this policy.

An initial determination of in-state status for undergraduates will be made by the Office of Undergraduate Admissions at the time a student’s application for admission is considered. The determination made at that time, and any determination made thereafter, shall prevail in each semester until the determination is successfully challenged. Students may challenge their classification by submitting a petition to the Residency Classification Office. Determinations are based on the residency policy and its requirements. The deadline for submitting a completed petition and meeting all nine criteria for the required 12 months is the first day of the semester in which the student wishes to be classified as an in-state student.

The volume of requests for reclassification may necessitate a delay in completing the review process. It is hoped that a decision in each case will be made within 60 days of receipt of petition and all required necessary documentation. During this period of time, or any further period of time required by the university, any fees and charges based on the previous determination must be paid. The student is solely responsible for any late charges incurred by the residency process. If the determination is changed, any excess fees and charges will be refunded.

Students classified as in-state for admission, tuition, and charge-differential purposes are responsible for notifying the Residency Classification Office in writing within 15 days of any change in their circumstances that might in any way affect their classification at the University of Maryland.

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## READMISSION AND REINSTATEMENT

Students who are admitted and do not register for their first semester or cancel registration prior to beginning their first semester must apply again for admission (see Freshman or Transfer Admission). Students who are admitted as “Term Only” also must apply again for admission if they wish to register for a subsequent term.

Students who have matriculated and registered and did not maintain that registration continuously (Fall and Spring semesters) to graduation, must apply for readmission or reinstatement to re-enroll at the University of Maryland.

See Chapter 4, “Withdrawal and leave of absence from the University” for more detailed information.

### Readmission

Students must apply for readmission if they interrupt registration for one or more semesters and were not academically dismissed at the conclusion of the last semester of attendance.

### Reinstatement

Students who are academically dismissed from the University must apply for reinstatement. All applications for reinstatement are reviewed by a Faculty Petition Board. Students may apply for reinstatement for the semester immediately following dismissal or for any subsequent semester. Only the Faculty Petition Board can grant reinstatement.

Students who are denied reinstatement will be required to comply with specific recommendations made by the Faculty Petition Board in order to be considered for reinstatement in a future semester.

### Reinstatement After Withdrawal

Students who withdraw from the University must apply for reinstatement if they interrupt enrollment for one or more semesters. Students who were academically dismissed at the conclusion of the previous completed semester also must apply for reinstatement. (See Undergraduate Policy on Probation and Dismissal.) Students should contact the Office of Undergraduate Admission for more information about readmission and reinstatement.

### Deadlines

There are no deadlines for **readmission**. For full consideration, students applying for **reinstatement** must observe the following deadlines:

Fall Semester—July 1  
Winter Term—November 1  
Spring Semester—December 1  
Summer Session I—May 1  
Summer Session II—June 1

All students are encouraged to apply early in order to take advantage of early registration.

### Summer School

Students who are dismissed at the end of the Fall semester are not eligible to attend Summer sessions unless or until they are approved for reinstatement. Students dismissed at the end of a Spring semester may attend any Summer sessions prior to being reinstated. However, these students must be approved for reinstatement in order to attend during the subsequent Fall semester.

### **Winter Term**

Students dismissed at the end of the Fall semester may attend Winter Term prior to being reinstated. Winter Term is offered to students who have attended during the preceeding Fall semester. Students with a break in attendance must be reenrolled to be eligible to attend Winter Term. Students readmitted/reinstated for a Spring semester may also attend Winter Term.

### **Clearances**

Clearances from Judicial Programs, the Bursar, Health Center, International Education Services, and/or the Graduate School may be requested of the applicant.

### **Applications**

Applications for readmission and reinstatement are available at the Office of Undergraduate Admissions, ground floor, Mitchell Building and may be requested by calling 301-314-8385. Applications and information may also be accessed via the web at [www.uga.umd.edu/admissions/apply/reenrollment.asp](http://www.uga.umd.edu/admissions/apply/reenrollment.asp).

### **Additional Information**

For additional information contact the Office of Undergraduate Admissions, ground floor, 0117 Mitchell Building, University of Maryland, College Park, MD 20742-5251, 301-314-8385.

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## **GRADUATE SCHOOL**

Those who have earned or will earn a bachelor's degree at a regionally accredited college or university in the United States, or the equivalent of this degree (as determined by the University of Maryland, College Park) in another country, will be considered for admission to the graduate school. Criteria are listed on the Graduate School's Web site. Requests for information about graduate programs or correspondence concerning application for admission to Graduate School at the University of Maryland should be addressed to the Graduate School, 2123 Lee Building, University of Maryland, College Park, MD 20742-5121 or email [gradschool@umd.edu](mailto:gradschool@umd.edu). To apply online, visit the graduate school's home page on the web at [www.gradschool.umd.edu](http://www.gradschool.umd.edu). For further information, contact the Graduate School Information Center, 301-405-0376.



## CHAPTER 2

# Fees, Expenses, and Financial Aid

## FEES AND EXPENSES

### Financial Services Center

1135 Lee Building, 301-314-9000 and 1-888-313-2404

[www.umd.edu/bursar](http://www.umd.edu/bursar)

Tuition and fees for the University of Maryland, College Park, are listed on the following page. The university requires that all deposits and fees be paid by stated deadlines, or penalties must be imposed. Many potential administrative difficulties can be avoided if students carefully follow published procedures and notify the appropriate office(s) of any changes that might affect their financial obligation to the university. This includes notifying the Bursar's Office of changes of address so that mail affecting the student's financial relationship with the university will not be delayed or returned.

College Park sponsors a deferred-payment plan. Information regarding the Terp payment plan is available by calling 301-314-9000 or 1-888-313-2404 or at [www.umd.edu/bursar](http://www.umd.edu/bursar).

All charges incurred during a semester are payable immediately. Returning students will not be permitted to complete registration until all financial obligations to the university, including library fines, parking violations, and other penalty fees and service charges, are paid in full.

Payment for past due balances and current semester fees is due on or before the first day of classes. Students who register in advance must pay their bills in full prior to the general registration period. Students who register after the initial registration period are required to make full payment by due date indicated to avoid cancellation of their enrollment and loss of their classroom seats to other students.

Although the university regularly bills students, it cannot assume responsibility for their receipt. Students are reminded that it is their responsibility to notify the university of any change in address or to correct an address. If a student bill is not received on or before the beginning of each semester, it is the student's responsibility to obtain a copy of the bill from the Financial Service Center, 1135 Lee Building. The Office is open Monday through Friday, 8:30 a.m. to 4:30 p.m.

All checks or money orders should be made payable to the **University of Maryland** for the exact amount due. **Student's name and student's social security number should be written on the front side of the check.** University grants and scholarships will be posted to the student's account. However, the first bill mailed prior to the beginning of each semester may not include these deductions.

Students are urged to check their residence hall and dining service agreements for procedures for cancellation of reservations and for deadlines for receiving refunds of deposits. Refunds cannot be made after these deadlines, even if the student decides not to attend the University of Maryland, College Park.

Students will incur a late payment fee in the event of failure to pay a balance on their student account by its due date. A late payment fee of \$10.00 or 5%, whichever is higher, will be assessed in addition to the total past due amount. An additional 1.5% finance charge will be charged monthly if the account is not settled.

Students who fail to pay the indebtedness during the semester in which delinquency occurs will be ineligible to advance register for subsequent semesters until the debt and the penalty fees are cleared.

In the event of actual registration for a subsequent semester by a delinquent student who has not settled his or her student account prior to that semester, such registration will be canceled and no credit will be earned for the semester.

The state has established, under legislative mandate, a Central Collections Unit (CCU) within the Department of Budget and Fiscal Planning. The university is required by state law to refer all delinquent accounts to the State Collections Unit. Please note that Maryland law allows the Central Collections Unit to intercept state income tax refunds for individuals with delinquent accounts, and that CCU is authorized to notify a National Credit Bureau of the delinquency at the time the account is referred to it for collection.

**All accounts due from students, faculty, staff, non-students, etc., are included within these guidelines.**

Central Collections Unit costs incurred in collecting delinquent accounts will be charged to the student. The minimum collection fee is 17% plus attorney and/or court costs.

No degrees, diplomas, certificates, or transcripts of records will be issued to students who have not made satisfactory settlement of their accounts.

**Note:** Additional Information on Student Financial Obligations, Disclosure of Information, Delinquent Accounts, and Special Fees, can be found in the "Policy Statements" section at the beginning of this catalog.

### Payment of Fees

All checks, money orders, or postal notes should be made payable to the University of Maryland. The student's social security number must be written on the front of the check. VISA, MasterCard, American Express, and Discover credit cards are accepted. Sign up now for online billing and payments at [www.umd.edu/bursar](http://www.umd.edu/bursar).

### Undergraduate Tuition and Fees\*

**\*An Important Fee Notice: Notwithstanding any other provision of this or any other University publication, the University reserves the right to make changes in tuition, fees, and other charges at any time deemed necessary by the University and the University System of Maryland Board of Regents. Tuition and fee information is published in the *Schedule of Classes* each semester and is also available on-line at [www.testudo.umd.edu](http://www.testudo.umd.edu)**

## Undergraduate Tuition and Fees

### 2006-2007 Academic Year-Estimated\*

#### Full-time Undergraduate Students

(For billing purposes, a student is considered full-time if the number of credit hours enrolled is 12 or more.)

#### Maryland Residents (In-state)

|  | Total Academic Year Costs |
|--|---------------------------|
| Tuition  | \$6,566.00                |
| Mandatory Fees (maximum fees charged to all students registered for 9 or more credits) | 1,252.00                  |
| Board Contract (Regular Point Plan)  | 3,425.00                  |
| Lodging (includes the \$140 telecom fee)   | 5,137.00                  |
| Technology Fee   | 88.00                     |

## Fees, Expenses, and Financial Aid 13

### Residents of the District of Columbia, Other States, and Other Countries (Out-of-state)

|  | Total Academic Year Cost |
|--|--------------------------|
| Tuition  | \$20,005.00              |
| Mandatory Fees (maximum fees charged to all students registered for 9 or more credits) | 1,252.00                 |
| Board Contract (Regular Point Plan)  | 3,425.00                 |
| Lodging (includes the \$140 telecom fee)   | 5,137.00                 |
| Technology Fee   | 88.00                    |

### Tuition and Fees for Part-time Undergraduate Students

(For billing purposes, a student is considered part-time if the number of credit hours enrolled is 11 or fewer.)

|  |          |
|--|----------|
| In-State Tuition (per credit hour)     | \$273.00 |
| Out-of-State Tuition (per credit hour) | \$834.00 |
| Mandatory Fees (per semester)          |          |
| 9 to 11 credit hours (per semester)    | 626.00   |
| 8 or fewer credit hours (per semester) | 287.00   |
| Technology Fee                         |          |
| 9 to 11 credits (per semester)         | 44.00    |
| 8 or fewer credits (per semester)      | 22.00    |

\*see previous page for important fee information

## Explanation of Fees

### Mandatory Fees

**Student Fees:** The mandatory fee assessment for undergraduate students is based on a number of requested credit hours as follows: Students registered for 9 or more credits: \$626.00 per semester; students registered for 8 or fewer credits: \$287.00 per semester. *This credit definition change was approved by the Cabinet at their June 28, 2001 meeting.*

**Student Activities Fee (Refundable):** Charged to all undergraduate students at the request of the Student Government Association. It is used in sponsoring various student activities, student publications, and cultural programs.

**Auxiliary Facilities Fee (Refundable):** Charged to all students. This fee is paid into a fund that is used for capital improvement, expansion, and construction of various campus facilities such as open recreation areas (tennis courts, basketball courts, etc.), transportation alternatives, and the Stamp Student Union. These projects are not funded or are funded only in part from other sources.

**Athletic Fee (Refundable):** Charged to all students for the support of the Department of Intercollegiate Athletics. All students are encouraged to participate in all of the activities of this department or to attend the contests if they do not participate.

**Shuttle Bus Fee (Refundable):** Charged to all students for the support of the shuttle bus transportation system.

**Stamp Student Union and Recreational Fee (Refundable):** Charged to all students and is used to expand recreational facilities and Stamp Student Union services.

**Recreation Services Fee (Refundable):** Charged to all students specifically to support the construction and operation of Ritchie Coliseum and the Campus Recreation Center, a multi-use facility that includes basketball and racquetball courts, indoor and outdoor pools, an indoor jogging track, and multipurpose activity spaces.

**Performing Arts and Cultural Center Fee:** Charged to all students to support the operation of the Clarice Smith Performing Arts Center.

**Telecommunications Fee:** Assessed to all students living in university residence halls.

**Technology Fee:** Charged to undergraduate students, to support the improvement of the computer systems on campus.

### Other Fees

**Undergraduate Application Fee (Non-Refundable):** Charged to all new applicants. \$55

**Graduate Application Fee (Non-Refundable):** Charged to all new applicants. \$60

**Enrollment Confirmation Deposit (Non-Refundable):** \$200. All newly admitted undergraduate students who intend to matriculate in the Fall or Spring semester must submit a \$200 deposit which is credited to their tuition charges when they enroll. Should the student decide not to enroll for the specific semester of application, the \$200 deposit is forfeited and cannot be used to offset any charges, including orientation charges, the student may incur.

Students admitted for the Fall semester must submit this deposit by May 1 or within 30 days from their date of admission, whichever is later, to reserve their place in the entering class. Students admitted for the Spring semester must submit this deposit by December 1 or within 14 days of their date of admission, whichever is later, to reserve their place in the entering class.

**Pre-College Orientation Program Registration Fee:** \$145 (two-day program), \$101 (one-day program), \$60.00 (per person). These charges are for Summer 2006.

**Late Registration Fee:** \$20. All students are expected to complete their registration on the regular registration days. Those who do not complete their registration during the prescribed days must pay this fee.

**Special Fee for students requiring additional preparation in mathematics (MATH 003, 010, 011, 013 and 015) per semester:** \$240. (Required of students whose curriculum calls for MATH 110 or 115 and who do not pass the qualifying examination for these courses.) This Special Math Fee is in addition to course charge. Students enrolled in this course and concurrently enrolled for nine or more credit hours will be considered as full-time students for purposes of assessing fees.

**Cooperative Education in Liberal Arts, Business, and Science (UNIV 098-099) Per Semester:** \$60

**Engineering COOP Program (ENCO 098-099) Per Semester:** \$60

**Other Special Fees:** The university offers a number of courses (MBA, ENTS, Chemical and Life Sciences) that have special course fees in addition to, or in lieu of, the standard tuition charges. Students are encouraged to contact the department prior to registering for the class to determine the total cost of the course.

**Fees for Auditors:** Fees for auditors and courses taken for audit are the same as those charged for courses taken for credit at both the undergraduate and graduate levels. Audited credit hours will be added to hours taken for credit to determine full-time or part-time status for fee assessment purposes. Special Students are assessed fees in accordance with the schedule for the comparable undergraduate or graduate classification.

**Special Examination Fee (Credit-by-Exam):** \$30 per course for all undergraduates and full-time graduate students; credit-hour charge for part-time graduate students.

**Parking Registration Fees:** All students enrolled for classes at the university and who drive or park a vehicle anywhere or anytime on the campus must register to park on campus each academic year. For additional information, please refer to the entry for Department of Transportation Services in chapter 3.

**Textbooks and Supplies:** Textbooks and classroom supplies vary with the course pursued, but averaged \$952 in 2005-2006 (two semesters).

**Service Charges for Dishonored Checks:** Payable for each check which is returned unpaid by the drawee bank on initial presentation because of insufficient funds, payment stopped, post-dating, drawn against uncollected items, etc.

For checks up to \$100: \$10  
For checks from \$100.01 to \$500: \$25  
For checks over \$500: \$50

When a check is returned unpaid, the student must redeem the check and pay any outstanding balance in the account within 10 days or late fees may be assessed and the account transferred to the Central Collection Unit for legal follow-up. Additionally, a minimum 17% collection charge is added to the charges posted to the student's account at the time the transfer is made. When a check is returned unpaid due to an error made by the student's bank, the student must obtain a letter from the branch manager of the bank or a person of equivalent status admitting the error. This letter must be submitted to the Office of the Bursar to have the service charge waived.

## 14 Fees, Expenses, and Financial Aid

**Overdue Library Charges:** For items from the library's main circulating collections, charges are 50 cents per day per item, and recalled item fines are \$2 per day. If an item is lost or mutilated, the borrower is charged the estimated cost of the item plus a processing fee to cover acquisition and cataloging costs. Different fine rates may apply to other library collections, such as reserve collections.

**Maryland English Institute Fee:** Semi-intensive, \$3,372. Intensive, \$5,770. Students enrolled with the Maryland English Institute pay this fee in support of the Institute. Students enrolled in the semi-intensive program may also enroll for regular academic courses and pay the tuition and fees associated with those offerings. The program also offers non-credit courses in American English Pronunciation (UMEI 006) for \$933 and Fluency Program or Advanced Writing (UMEI 007, 008) for \$1,240. These charges are for academic year 2005-2006 and are subject to change.

**Property Damage Charge:** Students will be charged for damage to property or equipment. When responsibility for the damage can be fixed, the individual student will be billed for it; when responsibility cannot be fixed, the cost of repairing the damage or replacing equipment will be prorated among the individuals involved.

**Late Payment Fee:** Per-semester fee of 5% of overdue amount, or \$10, whichever is greater, plus an additional 1.5% on each subsequent billing.

**Withdrawal and Refund of Fees:** Students compelled to leave the university at any time during the academic year should meet with their academic college advising office and secure a form for withdrawal. The completed form and identification card are to be submitted to the academic college advising office which will communicate results to the Office of the Registrar. Students will forfeit their right to a refund if the withdrawal action described above is not adhered to. The effective date used in computing refunds is the date the withdrawal form is filed in the academic college advising office. Stop payment on a check, failure to pay the semester bill, or failure to attend classes does not constitute withdrawal. Refund requests should be processed by students with the Office of the Bursar, otherwise any credit on the student account could be carried over to the next semester. **If a Cancellation of Registration is submitted to the Office of the Registrar before the official first day of classes the student is entitled to full credit of semester tuition.**

Undergraduate students withdrawing from the university will be credited for tuition and fees in accordance with the following schedule:

|                             |           |
|-----------------------------|-----------|
| Prior to 1st day of classes | 100%      |
| 1st 10 days of classes      | 80%       |
| 3rd week                    | 60%       |
| 4th week                    | 40%       |
| 5th week                    | 20%       |
| After 5th week              | No Refund |

Note: First-semester freshmen who receive Title IV aid and who withdraw will receive a refund in accordance with federal regulations.

**Prior to the first day of classes,** if full-time undergraduates drop a course or courses, thereby changing the total number of credits for which they are registered to 11 or fewer, charges for the semester will be assessed on the basis of the per-credit-hour fee for part-time students. However, if students later add a course or courses thereby changing the total number of credits for which they are registered to 12 or more, they will be billed for the difference between per-credit-hour fees paid and the general fees for full-time undergraduates.

**If during the first five days of classes** full-time undergraduates drop a course or courses thereby changing the total number of credits for which they are registered to 11 or fewer, charges for the semester will be assessed on the basis of part-time charges plus 20% of the difference between the full-time fees and appropriate part-time charges. After the first five days of classes, there is no refund for changing from full-time to part-time status.

Students who register as part-time undergraduate students and **apply** for a refund for courses dropped during the first week of classes will be given an 80% refund. No refund will be made for courses dropped thereafter.

**No part of the charges for room and board is refundable** except when students officially withdraw from the university or when they are given permission by the appropriate officials of the university to move from the residence halls and/or to discontinue dining hall privileges. In these cases, the room refund will be computed by multiplying the number of periods remaining by the pro rata weekly rate after adjusting for a service charge. Refunds to students having full board contracts will be calculated in a similar manner. No room and/or board refunds will be made after the 14th week of the semester. Students are reminded that reservations for room and board must be canceled by the date published in the residence hall and dining services agreement(s).

In computing refunds to students who have received the benefit of scholarships and loans from university funds, the computation will be made to return the maximum amount to the scholarship and loan accounts without loss to the university.

## FINANCIAL AID

**Office of Student Financial Aid**  
Student Financial Services Center  
1135 Lee Building, 301-314-9000  
E-mail: [umfinaid@osfa.umd.edu](mailto:umfinaid@osfa.umd.edu)  
**[www.financialaid.umd.edu](http://www.financialaid.umd.edu)**

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. The primary responsibility for financing attendance at the University of Maryland, College Park, lies with students and families. Scholarships, grants, loans, and work-study positions are awarded on the basis of academic ability and/or financial need as determined by a federal needs-analysis system. It is the intent of OSFA to provide assistance to students who might not otherwise be able to pursue college studies due to financial constraints.

Financial aid funds are limited; therefore, all new, readmitted, and returning students must follow these steps to receive priority consideration for financial aid:

1. Submit admissions applications and all necessary supporting documents to the Office of Admission by the appropriate deadlines. (Deadlines are listed in chapter 1.)
2. Complete a Free Application for Federal Student Aid (FAFSA) after January 1. **FAFSAs are available from OSFA online at [www.financialaid.umd.edu](http://www.financialaid.umd.edu). A new FAFSA is required for each academic year of the student's enrollment.**  
  
**New students should not wait to be admitted before filing the FAFSA.** A financial aid application has no bearing on a student's admission application. However, students will not receive final consideration for aid until they are admitted to a degree program.
3. **Mail the FAFSA to the Federal Processor no later than February 1, so that it is received by the processor by February 15. Applying online helps to expedite the process.** Income for the previous year may be estimated initially and corrected later on the Student Aid Report.

Applications received before February 15 will be given priority consideration.

### General Regulations Applicable to All Forms of Aid

**Full-Time Status.** For most types of aid, students must attempt at least 12 credit hours through the schedule adjustment period each semester in order to receive the full financial aid award. Please refer to the standards of Satisfactory Academic Progress when considering dropping below 12 credit hours for any given semester.

**Citizenship Status.** In order to be eligible for federal, state, or university financial assistance, students must be United States citizens or eligible non-citizens.

**Default/Owe Refund:** Students cannot be in default on an educational loan, nor can they owe any refund on a Pell Grant or Supplemental Educational Opportunity Grant (SEOG) previously awarded at any post-secondary institution.

**Degree-Seeking:** Students must be working toward a degree or certificate. Students must be admitted to the university as "degree-seeking."

**Satisfactory Progress:** Students must be making satisfactory progress toward a degree or certificate according to the Standards for Satisfactory Academic Progress published in the *Schedule of Classes*.

**Selective Service:** To receive federal financial aid, male students must register with Selective Service if they are at least 18 years old and born after December 31, 1959, unless they are not required by law. The federal government will verify compliance of this registration requirement.

**Receiving a Non-University Award:** If a student receives assistance (scholarship or loan) from a non-university source, the university may reduce the financial aid awarded by the university. It is the student's responsibility to notify the Office of Student Financial Aid of all outside awards.

**Change in Financial Situation:** It is the student's responsibility to notify the Office of Student Financial Aid of any changes to his or her financial circumstances during the year.

**Reapplication Requirement:** Need-based assistance is **not** automatically renewed from year to year. All students requesting need-based aid must reapply by submitting a new or renewal FAFSA annually. Such reapplication must indicate continued financial need as well as Satisfactory Academic Progress.

**Award Policy:** Financial aid is normally a combination of grants, loans, and student employment. The financial aid "package" is determined by the availability of financial aid and the financial circumstances of each student. It is not necessary to make any special application for university grants. The Office of Student Financial Aid will determine awards that best fit the needs and qualifications of the candidates.

### Estimating Educational Cost

A budget of average educational costs is used in determining the amount of aid that a student is awarded during the academic year. A typical budget for an undergraduate at the University of Maryland, College Park, is as follows:

**Dependent student living on campus/off campus\*  
(not with parent/relative)**

|  |            |
|--|------------|
| Tuition and Fees:                                  |            |
| In-State: Maryland Resident                        | \$7,906    |
| Out-of-State: DC, other states,<br>other countries | 21,345     |
| Room   | 5,137      |
| Board  | 3,425      |
| Books  | 952        |
| Personal expenses and commuting                    | 2,785      |
| <br>TOTAL In-state                                 | <br>20,205 |
| Out-of-state                                       | 33,644     |

\*The above budget is subject to change for the 2006-2007 academic year. To determine the final costs for the 2006-2007 academic year, please contact the Student Financial Services Center.

## MERIT-BASED FINANCIAL ASSISTANCE

### Scholarships

Several scholarships are available to the highest-achieving students at the University of Maryland, College Park. Two types of scholarships are available: those based solely on academic or creative talent (merit-based), and those based on financial need as well as academic or creative talent (need-based). The eligibility criteria for the different scholarships vary and are listed below. For more information on these programs, students are encouraged to contact the office or department responsible for selecting the recipients. Please see the list of departmental scholarships at the end of this chapter. Current information about scholarships is also available on the Web at [www.uga.umd.edu](http://www.uga.umd.edu).

**Banneker/Key Scholarship:** The University of Maryland seeks to identify and select some of the brightest high school seniors in the nation to continue their education as Banneker/Key Scholars. Students selected for this prestigious award will receive full financial support for four years, which covers tuition, room, board, mandatory fees, and a book allowance. They will also be admitted to the University Honors Program and will be afforded many other opportunities for participation in intellectual enrichment programs. For full consideration, students must submit an admission application, application fee, official transcript, essay, recommendations, and official copies of SAT or ACT scores to the Office of Undergraduate Admissions by December 1 for the following academic year. Selection is based upon academic achievement plus extracurricular activities, awards and honors, and an essay. Semifinalists are given a personal interview. Factors such as a candidate's involvement in community service, talents or skills, leadership, and character all play a part in the final awards. Contact the Office of Undergraduate Admissions or see [www.uga.umd.edu](http://www.uga.umd.edu) for more information.

**Regents Scholars Program:** The Regents Scholars Program recognizes the extraordinary achievement of outstanding freshmen students. New awards are made each year in the amount of full in-state tuition, room, board, and mandatory fees. Recipients are automatically admitted to the University Honors Program. A select number of the top high school scholars in the state will be considered for this most prestigious award. A complete

admission application, application fee, official transcript, essay, recommendations, and SAT or ACT scores must be submitted to the Office of Undergraduate Admissions by December 1 for consideration for the Regents Scholars Program for the following academic year. Contact the Office of Undergraduate Admissions for more information.

**National Merit Scholarships:** The University of Maryland, College Park is a sponsoring institution in the National Merit Scholarship competitions. The university offers \$2,000 scholarships for each of four years to in-state merit finalists who indicate College Park as their first-choice institution. Other merit finalists are awarded scholarships ranging from \$750 to \$2,000. To qualify, submit an admission application, application fee, official transcript, essay, recommendation, and official copies of SAT I or ACT scores no later than December 1. Contact the Office of Undergraduate Admissions for more information.

**President's Scholarship:** This award provides talented undergraduate students with tuition support for four years. Awards ranging from \$2,000 to \$8,000 per year are offered to incoming freshmen. Students are selected through the admission process with primary consideration given to academic performance in high school (high school courses and achievement) and standardized test scores (SAT or ACT). For full consideration, students must submit a complete application for admission by December 1. Contact the Office of Undergraduate Admissions at [www.uga.umd.edu](http://www.uga.umd.edu) for more information.

**President's Transfer Scholarship:** This scholarship is a two-year \$5,000 per year tuition scholarship for transfer students. Students do not have to fill out a separate application to be considered as they will be evaluated based on their application to the University of Maryland. The scholarship will be awarded to the most competitive transfer students with the strongest academic records and college grade point averages. Students who are awarded the scholarship will receive notification by mail about two weeks after they receive their letter of admission. Contact the Office of Undergraduate Admissions. [www.uga.umd.edu](http://www.uga.umd.edu).

**Weinberg Regents Scholarship:** The Board of Regents has designated the Weinberg Regents Scholarship to be awarded to a Maryland community college transfer student in order to continue the commitment to outstanding students. In order to be selected for this award, a student must have exceptional qualifications, including achievement of a 4.0 grade point average, completion of the Associate of Arts degree at a Maryland community college, evidence of creative and intellectual activities or scholarly potential, and have been admitted to one of the University System of Maryland institutions. The deadline for submitting the candidate's application material is June 15. The winner may receive the scholarship for two years, totalling no more than four semesters including Summer sessions. For information, contact the University System of Maryland Administration at 301-445-1992.

**Transfer Academic Excellence Scholarship:** These awards are available to outstanding students transferring from Maryland community colleges. The awards cover in-state tuition and mandatory fees for two years of undergraduate study. To be eligible for consideration, students must have an overall grade point average of 3.5 for all college work attempted, and must have completed an Associate of Arts degree or the entire first two years of courses for the major in which the student expects to enroll. Students who have previously attended the University of Maryland, College Park, are ineligible for this scholarship. Candidate nomination forms are available in early January from the Office of Undergraduate Admissions or from community college advisors. The deadline for receipt of the application, official transcripts, and scholarship materials is mid-March. Contact the Office of Undergraduate Admissions.

**Honors Scholarship:** Honors students already attending Maryland are eligible to apply for one of these \$500 awards. Financial need is not a criterion for selection. Regents, Banneker-Key, and President's Scholarship recipients are not eligible for Honors Scholarships. To be considered, students must be first- or second-year students, have at least a 3.2 grade point average, and be making satisfactory progress toward the completion of requirements for an Honors citation. In addition, applicants must submit an essay on their academic goals and plans for achieving them. Contact the University Honors Program.

**University of Maryland Departmental Scholarships:** Some Colleges and departments at the university offer a variety of merit scholarships. Most departmental scholarships require a student to have a minimum grade point average of 3.0 and be registered for a minimum of 12 credits per semester. For information regarding departmental scholarships, please contact the appropriate College or department.

## 16 Fees, Expenses, and Financial Aid

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**Creative and Performing Arts Scholarships:** These are competitive scholarships which are awarded annually. Primary consideration will be given to entering freshmen and transfer students from community colleges who have outstanding talent in art, dance, music, or theater. The scholarships cover in-state tuition and mandatory fees and are renewable for up to three additional years based upon an acceptable level of performance as defined by the respective departments. Auditions and/or portfolios are required. Contact the College of Arts and Humanities.

**Deans' Scholarships:** This award provides talented undergraduate students with tuition support for one to two years. Awards ranging from \$1,500 for one year to \$4,500 for two years are offered to incoming freshmen. To be considered, students must submit a complete admission application no later than December 1. Contact the Office of Undergraduate Admissions at [www.uga.umd.edu](http://www.uga.umd.edu).

**Maryland State Scholarships:** The Maryland State Scholarship Administration (MSSA), located in Annapolis, awards both need- and merit-based scholarships to Maryland residents. There are currently 16 different programs available, including the Guaranteed Access Grant, Educational Assistance Grant, the Senatorial Scholarship, the House of Delegates Scholarship, and the Distinguished Scholar Award. You may obtain more information about these and other awards by calling MSSA at 800-974-1024. All Maryland residents are expected to apply for State Scholarship assistance. Initial application for many of the awards is made through the Free Application for Federal Student Aid (FAFSA). Please note that filing the FAFSA is sufficient to apply for most Maryland State Scholarships at UMCP, although some may require additional application forms. The application deadline for most programs is March 1. FAFSAs are available from the UMCP Office of Student Financial Aid or online at [www.financialaid.umd.edu](http://www.financialaid.umd.edu).

**Scholarships from Other States:** Several states have reciprocal agreements with the State of Maryland. Students who are residents of these states may receive funds for study in eligible post-secondary institutions in Maryland. Interested students should contact their state scholarship agencies for information.

**Scholarship Searches:** A broad range of scholarships are available from private sources. Usually, these awards are not as well publicized as the state and university programs. Therefore, students should conduct a scholarship search to locate such sources. The University of Maryland offers access to several services to students to aid them in their searches. Access our Web site at [www.financialaid.umd.edu](http://www.financialaid.umd.edu) to use these services.

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## NEED-BASED FINANCIAL ASSISTANCE

### Grants

The Office of Student Financial Aid administers several grant programs for undergraduates. Awards are made based on financial need as determined by the FAFSA. Grants do not have to be repaid. Access our web site at [www.financialaid.umd.edu](http://www.financialaid.umd.edu) for more information.

**Federal Pell Grant:** This grant provides a "foundation" of financial aid, to which aid from other sources may be added. Only undergraduates who are seeking their first bachelor's degree and have exceptional need may receive a Federal Pell Grant. All undergraduates will be considered for this grant regardless of when their applications were received. Students may receive the Federal Pell Grant for less than full-time attendance, although the award will be pro-rated based on the number of credits attempted. Awards range from \$400 to \$4,050.

**Federal Supplemental Educational Opportunity Grant (FSEOG):** The FSEOG is awarded to full-time undergraduates with exceptional need. Priority is given to Federal Pell Grant recipients. To be considered for FSEOG, students must meet OSFA's priority application deadline of February 15. The minimum award is \$200. The maximum award is dependent upon government funding. The funds are divided among as many deserving students as possible.

**Institutional Grants:** The university awards grants to full-time students who demonstrate financial need and meet OSFA's priority application deadline of February 15. There are three funds from which institutional grants are awarded, the **UM Scholarship**, **Frederick Douglass Grant** and the **UM Grant**. OSFA selects the recipients of these awards based on availability of funds and the qualifications of the applicants. The UM Scholarship may be awarded to undergraduates with demonstrated need and high academic achievement. The UM Grant and Frederick Douglas Grant may be awarded to any undergraduate with demonstrated need. Award amounts for these programs range from \$200 to \$2,900.

### Self-Help

Financial aid also consists of self-help assistance such as employment and student loan programs. Most of these programs are awarded based on need as determined by the FAFSA. Access our web site at [www.financialaid.umd.edu](http://www.financialaid.umd.edu) for additional information.

**Federal Work-Study:** The Federal Work-Study (FWS) Program provides students with the opportunity to earn money to meet their educational and personal expenses. Money earned from the FWS program does not have to be paid back. To be considered for FWS, students must meet OSFA's priority application deadline of February 15. This award is need-based and may range from \$800 to \$2,500. Pay rates depend on the level of complexity of the work, but will be at least the federal minimum wage. Like all university employees, FWS employees receive a paycheck every other week for the hours worked. Most FWS jobs are on campus, though opportunities exist through the Community Service Program for FWS students to work off campus at several Federal Government Agencies. The number of hours students may work is limited to 20 per week while school is in session and 40 per week during vacations and summer break.

**Paid Internships:** Students with paid internships sign a contract at the beginning of the semester that states the payment amount for the number of hours to be worked during that semester. The payment amount is advanced to the student's account at the start of each semester. This program differs from Federal Work-Study in that students receive all "wages" at the start of each semester, as opposed to a bi-weekly pay check, and those funds are applied directly to the student's account. Several offices and departments on campus, including Shuttle UM, Residential Facilities, and Dining Services, offer paid internships. Students should contact the department or office for which they are interested in working.

**Federal Perkins Loan:** The Perkins loan is a low-interest rate (5%) loan for students with exceptional financial need. This is a loan borrowed from the school, and must be repaid. To be eligible, students must meet OSFA's priority application deadline of February 15. The amount of the award will depend upon the student's need and may range from \$200 to \$1,800. New borrowers (those who first receive a Federal Perkins Loan after July 1, 1988) have a grace period of nine months after graduating or leaving school before they must begin repayment of their Federal Perkins Loan(s). Interest will begin accruing at the time of repayment. This loan is interest-free while students are attending school and enrolled at least half time in a degree-seeking program.

**Federal Stafford Loan:** This is a low-interest-rate loan for students who attend at least half-time. Application is made through the school's financial aid office via the FAFSA. Eligibility for this loan is based on need, not credit worthiness. This loan is borrowed by the **student** and must be repaid.

There are two types of Federal Stafford Loans, subsidized and unsubsidized. The subsidized Stafford loan is awarded to students with demonstrated financial need; this loan is interest-free while students are attending school and enrolled at least half-time in a degree-seeking program. Students who do not demonstrate financial need, or who do not demonstrate sufficient need to borrow a fully subsidized Stafford loan, may borrow a Federal Unsubsidized Stafford Loan. The unsubsidized loan is interest bearing. Students borrowing an unsubsidized Stafford loan will be required to repay the principle and any interest that may accrue during school attendance. All students who wish to apply for either Federal Stafford Loan must complete the FAFSA. The interest rate for new borrowers securing their first Federal Stafford Loan on or after July 1, 1994 is variable, but capped at 8.25%. The interest rate through June 30, 2006 is 4.70%. Students who graduate or drop below half-time status are granted a six-month grace period before repayment of the Stafford loan is required.

The following are the maximum loan amounts per academic year: \$2,625 for undergraduates with freshman status, \$3,500 for undergraduates attaining sophomore status, and \$5,500 for undergraduate students who attain junior or senior status. If students do not demonstrate sufficient need to borrow the maximum subsidized Federal Stafford Loan, they may borrow the difference in a Federal Unsubsidized Stafford Loan. The maximum borrowing limit for most undergraduates is \$23,000.

**Federal PLUS (Parent Loans For Undergraduate Students):** This is a non-need-based loan, which parents may borrow to help defray the cost of their dependent children's education. The Federal PLUS enables parents to borrow the full yearly cost of attendance (as determined by the school) minus all other financial aid. Otherwise, there is no yearly or cumulative borrowing limit. Because this loan is not need-based, submission of the FAFSA is not required to apply. However, borrowers must first submit the PLUS loan application to the school for calculation and certification of the

maximum loan amount that the parent may borrow per student per year. The Federal PLUS is granted to borrowers based on credit-worthiness as determined by the lender whom the borrower selects. The interest rate for the Federal PLUS is variable, but capped at 9%. The rate is recalculated on July 1 of each year and is equivalent to 52-week Treasury Bill on June 1, plus 3.1%. Repayment of the PLUS begins immediately.

## **COLLEGE AND DEPARTMENTAL SCHOLARSHIPS**

**Some UM colleges and departments offer merit-based scholarships. Most departments will only consider students who enroll for 12 credits per semester, and who have a grade point average of at least 3.0. Some of these scholarships are open to prospective freshman and transfer students. Some of them are only open to continuing UM students. For additional information regarding departmental scholarships please contact the appropriate college or department or visit [www.financialaid.umd.edu/Scholarships/departmental.html](http://www.financialaid.umd.edu/Scholarships/departmental.html)**

### **COLLEGE OF AGRICULTURE AND NATURAL RESOURCES**

Agricultural & Resource Economics  
Biological Resources Engineering  
Landscape Architecture  
Natural Resource Sciences  
Natural Resources Management Program  
Nutrition & Food Science

### **COLLEGE OF ARTS AND HUMANITIES**

American Studies  
Art  
Art History & Archaeology  
Asian & East European Languages and Cultures  
Classics  
Communication  
Comparative Literature  
Dance  
English Language and Literature  
French & Italian Languages and Literatures  
Germanic Studies  
History  
Jewish Studies Program  
Linguistics  
Music  
Philosophy  
Spanish & Portuguese Languages and Literatures  
Theatre  
Women's Studies

### **COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES**

African American Studies  
Anthropology  
Criminology & Criminal Justice  
Economics  
Geography  
Government and Politics  
Hearing and Speech Sciences  
Joint Program in Survey Methodology  
Psychology

### **COLLEGE OF COMPUTER, MATHEMATICAL, AND PHYSICAL SCIENCES**

Applied Mathematics  
Astronomy  
Computer Science  
Geology  
Mathematics  
Meteorology  
Physics  
Statistics Program

### **COLLEGE OF EDUCATION**

Counseling & Personnel Services  
Curriculum & Instruction  
Education Policy, Planning, and Administration  
Human Development (Institute for Child Study)  
Measurement, Statistics & Evaluation  
Special Education

### **COLLEGE OF HEALTH AND HUMAN PERFORMANCE**

Family Studies  
Health Education  
Kinesiology

### **COLLEGE OF JOURNALISM**

### **COLLEGE OF LIBRARY AND INFORMATION SERVICES**

### **COLLEGE OF CHEMICAL AND LIFE SCIENCES**

Biology  
Cell Biology & Molecular Genetics  
Chemistry & Biochemistry  
Entomology

### **A. JAMES CLARK SCHOOL OF ENGINEERING**

Aerospace Engineering  
Chemical Engineering  
Civil and Environmental Engineering  
Electrical and Computer Engineering  
Fire Protection Engineering  
Materials and Nuclear Engineering  
Mechanical Engineering  
Reliability Engineering

### **ROBERT H. SMITH SCHOOL OF BUSINESS**

Accounting  
Business  
Decision and Information Technologies  
Finance  
Logistics, Business and Public Policy  
Management and Organization  
Marketing

### **SCHOOL OF ARCHITECTURE, PLANNING AND PRESERVATION**

Architecture  
Urban Studies and Planning Program

### **SCHOOL OF PUBLIC POLICY**

Environmental Policy Program  
Public Policy  
Public Sector Financial Management  
Social Policy

### **INTERDEPARTMENTAL PROGRAMS**

Chemical Physics Program  
Environmental Science and Policy (BSOS)  
Systems Engineering

### **RETURNING STUDENT PROGRAMS**

Alpha Epsilon Phi Foundation Returning Students Program  
Irwin S. Kamin Adult Learner Emergency Fund  
Charlotte W. Newcombe Scholarship  
Gerald G. Portney Memorial Scholarship  
Returning Students Program  
Women's Forum Scholarship

## CHAPTER 3

# Campus Administration, Resources, and Student Services

## CAMPUS ADMINISTRATION

### Office of the President

1101 Main Administration, 301-405-5803  
Clayton Daniel Mote, Jr., President  
[www.president.umd.edu](http://www.president.umd.edu)

The president is the chief executive officer of the University of Maryland. Six vice presidents, who report to the president, manage different divisions of the campus administration. The Office of Human Relations Programs, the Department of Intercollegiate Athletics, and the Maryland Fire and Rescue Institute report to the Office of the President. The University Senate, a representative legislative body of the university, advises the president on academic and other matters.

### Academic Affairs

1119 Main Administration 301-405-5252  
William W. Destler, Senior Vice President and Provost  
[www.provost.umd.edu](http://www.provost.umd.edu)

The Senior Vice President for Academic Affairs and Provost is the chief academic officer of the university with responsibility for guiding the academic development and direction of the institution in accordance with the university's mission; ensuring that our programs and faculty are of the highest caliber; supporting the diversity of our students, faculty, and staff as a special strength; and promoting academic excellence across the university. The deans of the 13 colleges and schools at the University report directly to him as do the deans for undergraduate, graduate, and continuing and extended education, the dean of the libraries and the chief information officer. The senior vice president and provost oversees the development, review, and implementation of all academic policies and regulations; consults closely with the University Senate and other faculty advisory groups on academic programs and policies; and serves as liaison with other university divisions in strategic and long-range planning.

### Administrative Affairs

1132 Main Administration, 301-405-1105  
John D. Porcari, Vice President  
[www.adminaffairs.umd.edu](http://www.adminaffairs.umd.edu)

The Office of the Vice President for Administrative Affairs is responsible for the effective management of the physical, fiscal, and staff support resources of the institution. The office also provides campus safety and security, materials management, and other necessary support services. Of particular interest to students are the community awareness and security programs offered by the Department of Public Safety and the information and assistance services provided by the Bursar for concerns of students regarding university billings.

### Student Affairs

2108 Mitchell Building, 301-314-8428  
Linda Clement, Vice President  
[www.studentaffairs.umd.edu](http://www.studentaffairs.umd.edu)

The Office of the Vice President for Student Affairs provides administrative leadership for 13 departments which oversee student life and health developmental needs. This includes services and research that help students clarify and fulfill their needs and objectives, and that contribute to a constructive campus learning environment. The office serves as a general point of contact for students and their families regarding student life. The office maintains liaison with the university chaplains, the Student

Government Association (SGA), and the Graduate Student Association (GSA). The Office of the Vice President for Student Affairs also provides administrative support for the Senior Council and Parent and Family Affairs.

### Office of Human Relations Programs

1130 Shriver Laboratory, East Wing  
301-405-2838  
[www.umd.edu/OHRP](http://www.umd.edu/OHRP)

The Office of Human Relations Programs (OHRP) advises and assists the President in the promotion of the university mission as it relates to multiculturalism, broadly conceptualized (i.e., race (inclusive of color and creed); ethnicity; language; national or geographic origin; socioeconomic class (inclusive of educational level, employment status, and familial configuration); sex and gender; gender identity and expression; sexual orientation; physical, developmental, and psychological ability; religious, spiritual, faith-based, or secular affiliation; age and generation; physical appearance, environmental concern; and, on the basis of the exercise of rights secured by the First Amendment). More specifically, we facilitate partnership building between various constituencies of students, faculty, and staff on these issues as they impact schooling and are oriented toward the realization of an inclusive and therefore affirming environment for every citizen of the university community.

The Office of Human Relations Programs (OHRP) is responsible for initiating action in compliance with institutional, state, and federal directives to provide equal education and employment opportunities for university students, faculty, and staff members. We also monitor the outcomes of actions taken in this regard, reporting our findings to the President, the Campus Senate, and to the campus community at large. We provide students, faculty, and staff with general information on equity efforts and on the status of equity and compliance matters at the university. Students, faculty, or staff having a concern about possible inequities in educational or employment matters, or who wish to register a complaint, may contact either the Campus Compliance Officer at 301-405-2839, or a member of the Campus' Equity Council (see Equity Council below).

The Office of Human Relations Programs (OHRP) sponsors initiatives that promote intergroup relationship building, sexual harassment and hate crimes prevention, multicultural organizational development, and processes complaints of discrimination following procedures set forth in the University's Human Relations Code (the complete text of this Code may be found in chapter 10).

The efforts of the OHRP are directed toward the development of our students, faculty, and staff becoming principled leaders, predisposed to progressive action; becoming democratic citizens as outstanding in what they do as in who they are with respect to their commitment to furthering the tenets of equity and justice for all.

### Equity Council

1119 Main Administration Building  
301-405-5793

The Equity Council serves as an advisory group to the President and supports the longstanding and continuous goal of the University of Maryland to be a national leader in recruiting and retaining a diverse community of faculty, staff and students.

The Council provides leadership in the articulation and development of affirmative action policies and procedures for the campus community. A particular focus of the Equity Council is to review and recommend, as appropriate, search and selection policies and procedures for the university and its colleges and departments.

## Campus Administration, Resources, and Student Services 19

The Council consists of equity administrators from each Vice President and Dean's office and the Office of the President. The Special Assistant to the President for Equity Diversity serves as Chair of the Council.

Dr. Robert E. Waters, Jr., Chair, Office of the President  
301-405-5793  
1119 Main Administration Building  
rewaters@umd.edu

Dr. Javaune Adams-Gaston, Career Center/Student Affairs  
301-314-7236  
3100 Hornbake Library  
jadams@umd.edu

Dr. Amel Anderson, College of Chemical and Life Sciences  
301-405-2080  
1224 Symons Hall  
aanders@umd.edu

Dr. Viki Annand, College of Health and Human Performance  
301-405-2473  
2302 Health and Human Performance Building  
va5@umail.umd.edu

Ms. Gloria Aparicio, Office of Administrative Affairs  
301-405-5643  
1132 Main Administrative  
ga44@umail.umd.edu

Dr. Cordell W. Black, Office of Academic Affairs  
301-405-7227  
1127C Main Administration  
cblack@umd.edu

Mr. Paul Brown, Maryland Fire and Rescue Institute  
MFRI Administrative Headquarters Building  
301-226-9963  
pbrown@mfri.org

Ms. LaVern Chapman, Robert H. Smith School of Business  
301-405-7103  
2407 Van Munching Hall  
lchapman@rhsmith.umd.edu

Ms. Roberta H. Coates, Office of the President  
301-405-5795  
2148 Tawes Fine Arts Building  
rcoates@umd.edu

Ms. Jennifer Dolan, A. James Clark School of Engineering  
301-405-3855  
1124 Martin Hall  
bdolan@umd.edu

Ms. Barbara Duncan, College of Agriculture and Natural Resources  
301-405-0044  
1122 Symons Hall  
bduncan@umd.edu

Ms. Ingrid Eusebe-Farrell  
College of Computer, Mathematical and Physical Sciences  
301-405-2314  
3421 A. V. Williams Building  
ifarrell@umd.edu

Ms. Cynthia Hale, College of Behavioral and Social Sciences  
301-405-1684  
2141 Tydings Hall  
chale@umd.edu

Ms. Wendy A. Jacobs, College of Arts and Humanities  
301-405-2354  
1103 Francis Scott Key Hall  
wajacobs@umd.edu

Ms. Mary Kivilighan, College of Education  
301-405-3130  
3113 Benjamin Bldg.  
mkivligh@umd.edu

Dr. Ronald Lipsman, College of Computer, Mathematical and Physical Sciences  
301-405-2319  
3417 A.V. Williams Building  
rlipsman@deans.umd.edu

Ms. Johnnie Love, University Libraries  
301-405-9048  
7233 McKeldin Library  
jl345@umail.umd.edu

Mr. James Newton, Office of Undergraduate Studies  
301-405-6851  
2130K Mitchell Building  
jnewton@umd.edu

Dr. Gary Pertmer, A. James Clark School of Engineering  
301-405-5227  
2309 Chemical & Nuclear Engineering  
pertmer@eng.umd.edu

Mr. William L. Powers, School of Public Policy  
301-405-6336  
2101 Van Munching Hall  
wpowers@umd.edu

Ms. Olive Reid, Philip Merrill College of Journalism  
301-405-2390  
2115 Journalism Building  
oreid@umd.edu

Dr. Stephen F. Sachs, School of Architecture, Planning and Preservation  
301-405-6314  
1205 Architecture Building  
ssachs@umd.edu

Ms. Teresa Thompson, Division of University Relations  
301-405-3032  
4105 Hornbake Library, South Wing  
tt92@umail.umd.edu

Ms. Gigi Washington, Division of University Relations  
301-405-2532  
3144A Samuel Riggs Alumni Center  
gashington@umd.edu

Dr. Donna Wiseman, College of Education  
301-405-0866  
3119 Benjamin Building  
dw216@umail.umd.edu

### Office of Undergraduate Studies

2130 Mitchell Building  
301-405-9363  
**www.ugst.umd.edu**

Associate Provost and Dean: Donna B. Hamilton  
Associate Dean: Katherine McAdams  
Associate Dean: Scott Wolpert  
Assistant Dean: Lisa Kiely  
Assistants to the Dean: James Newton, Laura Slavin

Through its many programs, the Office of Undergraduate Studies serves all undergraduate students at the University and the faculty and staff that support the undergraduate mission of the campus. The Office of Undergraduate Studies is the primary division at the University of Maryland responsible for leadership and oversight of undergraduate curricular and co-curricular education.

For more information see Office of Undergraduate Studies in Chapter 6.

### University Relations

2119 Main Administration, 301-405-4680  
Brodie Remington, Vice President  
**www.urhome.umd.edu**

The office of the Vice President for University Relations conducts a variety of programs to develop greater understanding of and support for the University of Maryland among its many publics. Units of this office include Development, Marketing and Communications, University of Maryland College Park Foundation Administration, Special Events, and Alumni Relations. University Relations is responsible for campus-wide advancement programs in fund-raising, alumni affairs, production of official campus publications, films and video presentations, media relations, and management of major campus events.

### University Senate

1100 Marie Mount Hall, 301-405-5805  
**www.senate.umd.edu**

The University Senate, an integral part of the institution's system of shared governance, has representation from all segments of the campus community: faculty, staff, undergraduate students, and graduate students. Participation in the Senate or any of its 15 Standing Committees is an honor and a responsibility.



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The full Senate meets approximately nine times a year to consider matters of concern to the institution, including academic issues, university policies, plans of organization, facilities, and the welfare of faculty, staff, and students. The Senate advises the president, the chancellor, or the Board of Regents as appropriate. To become a student senator, students must be elected by students in their college or school or the Office of Undergraduate Studies in centralized, online elections. Elections are held every year during the spring semester. Students are also encouraged to participate in Senate Standing Committees, such as Student Affairs and Human Relations. These committees draw membership from the campus community at large and cover every aspect of campus life and function. Details about the election and appointment process are available from the University Senate Office.

## ACADEMIC RESOURCES AND SERVICES

### Academic Achievement Programs

2110 Marie Mount Hall, 301-405-4736

Executive Director: Dr. Jerry L. Lewis

[www.aap.umd.edu](http://www.aap.umd.edu)

The Academic Achievement Programs (AAP) primarily provides resources and opportunities for low-income individuals, first generation college students, disabled students and traditionally under-represented students.

For more information, see Office of Undergraduate Studies section in Chapter 6.

### Academic Advising

Academic advising is an essential part of an undergraduate's educational experience. Students can expect advising to help them:

- better understand their purposes for attending the university;
- develop insights about personal behaviors that promote improved adjustment to the campus setting;
- increase their awareness of academic programs and course offerings at the University of Maryland;
- explore opportunities both inside and outside the classroom for intellectual and cultural development;
- acquire decision-making skills that can accelerate academic and career planning;
- realistically evaluate their academic progress and its relationships to successful planning; and
- understand the relationship between academic success and planning skills.

**Required Advising:** Students enrolled in certain majors are required to see advisors before each registration. Even when advising is not mandatory, the university expects students in the following categories to consult their advisors.

- Students in their first year of registration at the University of Maryland
- Students with more than 60 credits who have not chosen a major
- Students receiving an academic probation (mandatory)
- Students dismissed from the university (mandatory)
- Students who withdraw from the university (mandatory)
- Students nearing graduation
- Students with 70-80 credits: senior audit
- Student athletes

**Finding An Advisor:** Undergraduate students are encouraged to use the many advising opportunities available to them. At both college and department levels, at least one person has been designated to coordinate advising. A list of these persons, including name, room number, and telephone extension, is published each semester in the Schedule of Classes.

### Admissions

Ground Floor, Mitchell Building, 301-314-8385

[www.uga.umd.edu](http://www.uga.umd.edu)

The services offered by the Office of Undergraduate Admissions are designed to meet the individual needs of prospective students. The office provides general information about the University of Maryland through brochures, letters, information sessions, and campus tours. Admissions staff evaluate the applications of both freshman and transfer students in order to select qualified students. Undergraduate Admissions also reviews all applications for readmission and reinstatement. For more information about undergraduate admissions, see chapter 1.

### America Reads\* America Counts

0144 Holzapfel Hall 301-314-READ

[www.arac.umd.edu](http://www.arac.umd.edu)

America Reads\*America Counts, part of the Office of Community Service Learning, provides federal work-study students the opportunity to serve as reading and math mentors in nearby Prince George's County elementary schools. Students tutor 6-10 hours per week and are matched with 3-5 children per semester. Mentors receive excellent training and salary. Opportunities exist for students to enhance their leadership skills and provide administrative support to the program as well. Contact America Reads\*America Counts to learn whether you can be eligible for federal work-study or for more information about the program.

### Computing Services: Office of Information Technology

Phone: 301-405-7700

Fax: 301-405-0300

e-mail: [oit@umail.umd.edu](mailto:oit@umail.umd.edu)

[www.oit.umd.edu](http://www.oit.umd.edu)

University of Maryland students are part of an academic community that enjoys access to networked computer and telecommunications resources that are among the best in the nation. The Office of Information Technology (OIT) provides technology infrastructures and focuses attention on services that support university education and research missions as well as underlying business processes.

Many faculty members have integrated technology into courses as part of the learning process, both in and outside of the classroom. Computer accounts enable students to store class work on a networked server, use on-line classroom support materials, send e-mail, and create web sites. Residence Halls provide a "port-per-pillow," and workstation labs across the university feature PC, Mac, and UNIX environments for those needing a computer, laser printing, or course-related software. An Adaptive Technology Lab and equipment are available to users requiring them.

Testudo ([www.testudo.umd.edu](http://www.testudo.umd.edu)) is a web-based, one-stop-shop for on-line university resources that students need the most. It allows you access to your individual registration and course information. You can view the schedule of classes, find the sections with preferred instructors and openings, and register on-line, all from the comfort of your dorm room or home. You can check the status of your financial aid, see your grades, view your outstanding parking tickets, order transcripts, apply for a new residence hall room assignment, and much more. It is all password protected and secure to ensure your privacy.

Assistance in solving operating system or software problems is available from the OIT Help Desk ([www.helpdesk.umd.edu](http://www.helpdesk.umd.edu), 301-405-1500). Additional computer help is offered through short-term, non-credit "peer training" classes. ([www.oit.umd.edu/pt](http://www.oit.umd.edu/pt))

### Office of Extended Studies

2103 Reckord Armory, 301-405-6551

Chuck Wilson, Director

[www.summer.umd.edu](http://www.summer.umd.edu)

[www.winter.umd.edu](http://www.winter.umd.edu)

[www.fc.umd.edu](http://www.fc.umd.edu)

The Office of Extended Studies administers the University's Summer Term, Winter Term, and the Freshmen Connection Program.

**Summer Term** serves more than 12,000 students in over 1,700 undergraduate and graduate courses offered in six sessions during the University's twelve-week Summer Term. Additionally, special summer programs include the *Young Scholars Program* and *The Arts! at Maryland*, enrolling academically qualified high school juniors and seniors, and *Freshmen First*, providing fall and spring newly admitted freshmen an opportunity to transition into college while earning academic credit. Noncredit workshops also are available in Summer Term.

**Winter Term** is a three-week session in January offering more than 200 undergraduate and graduate courses as well as noncredit workshops. Winter Term provides an opportunity for students to accelerate their progress toward graduation, fulfill prerequisites, and meet eligibility requirements for certain majors.

**The Freshmen Connection Program** is a fall semester academic program specifically designed for students who have accepted spring admission to the University of Maryland. Students enroll in this extension program to earn up to 16 credits toward their undergraduate degree.

### **Student Financial Services Center**

1135 Lee Building, 301-314-9000  
[www.financialaid.umd.edu](http://www.financialaid.umd.edu)

The Office of Student Financial Aid (OSFA) administers a variety of financial assistance and student employee programs. Assistance is granted primarily on the basis of the applicant's financial need as determined by the Free Application for Federal Student Aid (FAFSA). The OSFA staff is available for individual counseling on matters pertaining to financing a college education. For additional information, see chapter 2, Fees, Expenses, and Financial Aid.

### **College Gateway Programs**

Director: Shirley H. Morman  
 3103 Turner Hall, 301-314-7763  
**Educational Talent Search:** [www.etsp.umd.edu](http://www.etsp.umd.edu)  
**ProjectLINKS:** [www.projectlinks.umd.edu](http://www.projectlinks.umd.edu)

Educational Talent Search increases the college participation of low-income and first-generation college students. ProjectLINKS features homework support through an innovative online tutoring model for middle-school students.

For more information, see Office of Undergraduate Studies section in Chapter 6.

### **Honor Societies**

[www.union.umd.edu/studentorg/](http://www.union.umd.edu/studentorg/)

Students who excel in scholarship and leadership may be invited to join the appropriate honor society. Honor societies at Maryland include:

Alpha Chi Sigma (Chemistry)  
 \*Alpha Epsilon (Agricultural Engineering)  
 \*Alpha Epsilon Delta (Pre-Med)  
 Alpha Epsilon Rho (Broadcast Journalism)  
 \*Alpha Kappa Delta (Sociology)  
 \*Alpha Lambda Delta (Freshman Scholarship)  
 Alpha Phi Sigma (Criminal Justice)  
 Alpha Zeta (Agriculture)  
 Beta Alpha Psi (Accounting)  
 Beta Gamma Sigma (Business Management)  
 Black Honors Caucus  
 \*Chi Epsilon (Civil Engineering)  
 Delta Nu Alpha (Transportation)  
 Delta Phi Alpha (German)  
 Delta Sigma Pi (Business)  
 Eta Beta Rho (Hebrew)  
 \*Eta Kappa Nu (Electrical Engineering)  
 \*Gamma Theta Upsilon (Geography)  
 \*Golden Key Honor Society (Leadership/Scholarship)  
 \*Kappa Delta Pi (Education)  
 \*Kappa Tau Alpha (Journalism)  
 \*Lambda Pi Eta (Speech Communication)  
 \*Mortar Board National Honor Society (Scholarship)  
 \*National Society of Collegiate Scholars  
 \*Omega Chi Epsilon (Chemistry Engineering)  
 \*Omega Rho (Business)  
 \*Omicron Delta Epsilon (Economics)  
 \*Omicron Delta Kappa (Scholarship/Leadership)  
 \*Order of Omega (Fraternity/Sorority Leadership)  
 Phi Alpha Epsilon (Health/Human Resources)  
 \*Phi Alpha Theta (History)  
 Phi Beta Kappa (Scholarship)  
 Phi Chi Theta (Business and Economics)  
 \*Phi Eta Sigma (Freshman Scholarship)  
 \*Phi Kappa Phi (Senior/Graduate Scholarship)  
 \*Phi Sigma (Biology)  
 \*Phi Sigma Pi (Scholarship/Leadership)  
 \*Phi Sigma Iota (French/Italian)  
 \*Pi Sigma Alpha (Political Science)  
 \*Phi Sigma Theta  
 Pi Tau Sigma (Mechanical Engineering)  
 \*Primannum Honor Society  
 \*Psi Chi (Psychology)  
 Sigma Alpha Omicron (Microbiology)  
 Sigma Delta Chi (Journalism)  
 \*Sigma Delta Pi (Spanish)  
 \*Sigma Tau Delta (English)  
 \*Tau Beta Pi (Engineering)  
 Tau Beta Sigma

\*Member of Association of College Honor Societies

### **Intercollegiate Athletics**

Comcast Center, 301-314-7075  
[www.umterps.com](http://www.umterps.com)

The Department of Intercollegiate Athletics is responsible for directing intercollegiate athletic programs for both women and men, and for managing the campus' athletic complex.

Women's intercollegiate athletic teams include cross country, field hockey, soccer and volleyball in the fall; basketball, competitive cheer, swimming, indoor track and gymnastics during the winter; and lacrosse, softball, outdoor track and water polo in the spring. Tennis and golf competition is scheduled in both the fall and spring seasons.

There are men's teams in football, soccer and cross country in the fall; basketball, swimming, wrestling, and indoor track during the winter; and baseball, golf, tennis, lacrosse and outdoor track in the spring.

Men's and women's teams compete in the Atlantic Coast Conference (ACC) and in the National Collegiate Athletic Association (NCAA).

### **National Collegiate Athletic Association Requirements for Student Athletes' Continuing Eligibility (For student-athletes first enrolling at a collegiate institution prior to August 1, 2003) (Subject to change)**

1. NCAA eligibility for regular season competition subsequent to the student's first year is based upon satisfactory completion prior to each fall term of twenty-four (24) semester hours of acceptable degree credits or an average of twelve (12) semester hours per term of attendance. Students must earn 75% of degree credits (minimum of 18 credits) during fall and spring semesters. No more than 25% (6 credits) may be earned during summer sessions. In addition, student athletes must satisfactorily complete six-semester or six-quarter hours of academic credit the preceding regular academic term (e.g. fall semester, winter quarter) in which the student athlete has been enrolled full time at any collegiate institution.
2. The calculation of credit hours shall be based upon hours accepted for degree credit at the institution.
3. Student athletes must declare a major program of study no later than the beginning of their fifth full-time term of attendance.
4. Credit hours earned toward athletic eligibility for students in declared majors must be acceptable in their specific degree program.
5. The 24 credit hours of acceptable credit required each year may include credits earned for a repeated course when the previous grade was an F, but usually does not include the credits if the previous grade was D or better.
6. Student athletes who enter their third year of college enrollment must have successfully completed at least 25% of the course requirements in their specific degree program.
7. Student athletes who enter their fourth year of college enrollment must have successfully completed at least 50% of the course requirements in their specific degree program.
8. Student athletes who enter their fifth year of college enrollment must have successfully completed at least 75% of the course requirements in their specific degree program.
9. Student athletes entering their third year of college enrollment shall present a cumulative minimum GPA that equals 90% of the institution's overall cumulative minimum GPA required for graduation.
10. Student athletes entering their fourth or subsequent year of college enrollment shall present a cumulative minimum GPA that equals 95% of the institution's cumulative minimum GPA required for graduation.

### **National Collegiate Athletic Association Requirements for Student-Athletes' Continuing Eligibility (For student-athletes first entering a collegiate institution on or after August 1, 2003) (Subject to change)**

1. NCAA eligibility for regular season competition subsequent to the student's first year is based upon satisfactory completion of prior to each fall term or since the beginning of the preceding two semesters of twenty-four (24) semester hours of acceptable degree credit, 18 of which must be earned during the academic year. In addition, each term a student-athlete must pass six credits to be eligible for the upcoming semester. In addition, student athletes must satisfactorily complete six-semester or six-quarter hours of academic credit the preceding regular academic term (e.g. fall semester, winter quarter) in which the student athlete has been enrolled full time at any collegiate institution.
2. The calculation of credit hours shall be based upon hours accepted for degree credit at the institution.

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3. Student athletes must declare a major program of study no later than the beginning of their fifth term of attendance.
4. Credit hours earned toward athletic eligibility for students in declared majors must be acceptable in their specific degree program.
5. The 24 credit hours of acceptable credit required each year may include credits earned for a repeated course when the previous grade was an F, but usually does not include the credits if the previous grade was a D or better.
6. Student athletes who enter their third year of collegiate enrollment must have successfully completed at least 40% of the course requirements in their specific degree program.
7. Student athletes who enter their fourth year of collegiate enrollment must have successfully completed at least 60% of the course requirements in their specific degree program.
8. Student athletes who enter their fifth year of collegiate enrollment must have successfully completed at least 80% of the course requirements in their specific degree program.
9. Student athletes entering their second year of collegiate enrollment shall present a cumulative minimum GPA that equals 90% of the institution's overall cumulative minimum GPA required for graduation.
10. Student athletes entering their third year of collegiate enrollment shall present a cumulative minimum GPA that equals 95% of the institution's overall cumulative minimum GPA required for graduation.
11. Student athletes entering their fourth or subsequent year of college enrollment shall present a cumulative minimum GPA that equals 100% of the institution's overall cumulative minimum GPA required for graduation.

### University of Maryland Athletic Eligibility Requirements

Students should contact ICA for any updated information. The University of Maryland requires student-athletes to maintain a specified minimum grade point average and credit level to be eligible for competition as mandated by the NCAA. The following standards are required for competition eligibility:

|                     |                     |                         |
|---------------------|---------------------|-------------------------|
| End of 1st semester | 1.29 cumulative GPA |                         |
| End of 2nd semester | 1.80 cumulative GPA | 24 cumulative credits   |
| End of 3rd semester | 1.80 cumulative GPA |                         |
| End of 4th semester | 1.90 cumulative GPA | 40% of degree completed |
| End of 5th semester | 1.90 cumulative GPA |                         |
| End of 6th semester | 2.00 cumulative GPA | 60% of degree completed |
| End of 7th semester | 2.00 cumulative GPA |                         |
| End of 8th semester | 2.00 cumulative GPA | 80% of degree completed |
| End of 9th semester | 2.00 cumulative GPA |                         |

Student-athletes who meet the required grade point average and all other conference, institutional, and NCAA eligibility requirements will be eligible to compete for the academic semester with the exceptions noted below:

1. Student-athletes who fail to meet the necessary grade point average requirements, or any other conference, institutional, or NCAA eligibility requirements are ineligible for the entire semester. However, they may restore their eligibility at the end of any semester if all requirements are met.
2. Ineligible student-athletes are not permitted to compete or travel.
3. First-semester freshman who do not meet the cumulative GPA requirements, may seek an appeal under certain circumstances. Transfer student-athletes are required to attain the appropriate cumulative GPA based upon the number of full-time semesters they have been enrolled in any institution.
4. Mid-year matriculants are required to meet the established GPA standard for each of their first three semesters. Thereafter, they will be reviewed at the beginning of each Fall term.
5. Student athletes in their final year of eligibility must maintain a 2.0 cumulative GPA in order to be eligible for competition during Spring term.
6. Eligible student athletes who go on academic probation after Fall term are required to attend supervised study sessions and receive academic support services as assigned by the Academic Support Unit staff.
7. Dismissed and later reinstated student athletes are ineligible for competition until they meet designated grade point averages.

The Office of Intercollegiate Athletics also sponsors a number of awards for achievement in athletics and/or scholarship. Consult the Student Athlete Handbook for details.

For further information, contact the Academic Support and Career Development unit, 301-314-7043. Fax: 301-314-9997.

### International Education Services

3116 Mitchell Building, 301-314-7740

E-mail: [iesadv@deans.umd.edu](mailto:iesadv@deans.umd.edu)

[www.umd.edu/INTL/](http://www.umd.edu/INTL/)

International students and faculty receive a wide variety of services designed to help them benefit from their experience in the United States. International Education Services (IES) works closely with the Office of Undergraduate Admissions, evaluating academic records from overseas and processing applications for English proficiency, visa, and financial requirements. IES sponsors orientation programs, immigration and employment seminars, and coordinates activities for the International House. IES advisors counsel international students concerning immigration and personal issues.

**F-1 and J-1 status students.** Students with F-1 or J-1 status are responsible for following the regulations of the U.S. Immigration and Naturalization Service pertaining to their visa status. The regulations affect extension of stay, transfers, off-campus employment authorization, practical training, and course loads. The Office of International Education Services is the only office on campus authorized to sign documents which must be forwarded to the Immigration and Naturalization Service.

### Maintaining Status

- **Full-time registration:** In order to maintain full-time student status for immigration purposes, F-1 and J-1 undergraduate students are expected to register for and complete a minimum credit load of 12 hours per semester. Pre-approval from IES is required if you are going to complete the semester with fewer than 12 credits.
- **Documents:** International students must have a valid passport at all times unless exempt from passport requirements. If your I-20 or DS-2109 will soon expire you should apply for an extension at least 30 days prior to the program completion date on the document. To travel outside the U.S. and re-enter as an F-1 or J-1, an advisor in IES must sign your I-20 or DS-2109 before you leave.
- **Health Insurance:** F-1 and J-1 students are required to carry adequate health insurance while attending the university. There are federal health insurance requirements for J-1 students and their dependents. Students must either purchase the health insurance plan available in the Office of International Education Services or show proof of coverage that meets USIA guidelines. Visit the Health Center for assistance with insurance.

### Maryland English Institute (MEI)

1121 Holzapfel Hall, 301-405-8634

[www.mei.umd.edu](http://www.mei.umd.edu)

Director: Marsha Sprague

The Maryland English Institute (MEI) is committed to providing high quality instruction, to meeting the needs of non-native speakers and their sponsors, and to strengthening the ability of non-native English speakers to participate in rigorous academic and professional environments. MEI serves the University as a resource center in English language teaching and testing matters. It evaluates and instructs prospective and provisionally admitted international students and teaching assistants. Two regular instructional programs are offered: a semi-intensive program for provisionally admitted students and a full-time intensive program.

**Semi-Intensive (UMEI 005):** This program is open only to students admitted to the University of Maryland who have submitted TOEFL scores between 475-574 (on the paper-based test), 153-232 (on the computer-based test) or 60-83 on the iBT. Students with these scores are provisionally admitted, and must satisfactorily complete UMEI 005 their first semester in order to become fully admitted, full-time students at the University. UMEI 005 classes meet five days a week, two hours a day. The program is designed especially to perfect the language skills necessary for academic work at the University of Maryland. Enrollment is by permission of the director, and no credit is given toward any University degree.

**Intensive:** This full-time English language program is open to non-native speakers who wish to improve their English for academic, professional or general purposes. There are three intensive English sessions per year: One for fall semester, one for spring, and a six-week session in the summer. Each consists of approximately 23 hours of instruction weekly. The program offers two levels of instruction, upper intermediate and advanced. Instructors encourage computer-assisted learning at all levels. Satisfactory completion of the program does not guarantee acceptance at the University. Enrollment is by permission of the director, and no credit is given toward any University degree.

**Study Abroad Office.** American students and faculty receive advice and information about study, travel, and work in other countries. Students may obtain assistance with transfer credits, reenrollment, pre-registration, and housing for the semester they return to campus. The University of Maryland offers study abroad programs throughout the world. For more information about Study Abroad, see Campus-Wide Programs in chapter 7.

### **Division of Letters and Sciences**

1117 Hornbake Library  
Interim Director: John Bowman  
General Advising: 301-314-8418 or 8419  
Pre-Professional Advising: 301-405-2793  
Credit-By-Exam: 301-405-2783  
[www.ltsc.umd.edu](http://www.ltsc.umd.edu)

Letters and Sciences is the academic home for students exploring a variety of fields before selecting a major, for post-baccalaureate students taking additional course work, and for non-degree seeking students taking undergraduate courses. Letters and Sciences may also serve as the academic home for students completing requirements for entry into a Limited Enrollment Program.

For more information, see Office of Undergraduate Studies section in Chapter 6.

### **The Office of Multi-Ethnic Student Education (OMSE)**

1101 Hornbake Library, 301-405-5616 or 405-3830  
[www.umd.edu/OMSE](http://www.umd.edu/OMSE)

**Academic Support and Leadership Focus.** The Office of Multi-Ethnic Student Education (OMSE) provides academic support programs and services to enhance the recruitment, retention and graduation of undergraduate multi-ethnic students at the University of Maryland (UM), College Park. OMSE's academic support activities include a tutorial service, mentoring programs, academic classes that develop college success skills and peer helping strategies, EDCP-108N and EDCP-312; and Academic and Leadership Excellence programs. As an academic unit, OMSE strives to identify and meet changing needs that affect the success of our undergraduate multi-ethnic students. OMSE collaborates with other campus offices and college programs to achieve this goal, as well as to promote a positive community of learners who are sensitive to issues of diversity, and to enhance the academic experience of our diverse undergraduate student population at UM.

**Study Lounge and Computer Workstation.** The OMSE office suite contains a study lounge that serves as a tutorial center and an open workstation laboratory. The study lounge provides multi-ethnic students with an opportunity to study, get assistance from a tutor, and work on state-of-the-art computers in a relaxed atmosphere.

**Liaison to Student Organizations.** OMSE staff members actively support a number of multi-ethnic pre-professional undergraduate student societies in law, business, science, health, and education disciplines. OMSE also supports and works closely with the campus Asian-American Student Union, Black Student Union, Latino Student Union, and the American Indian Student Union.

### **Oak Ridge Associated Universities**

[www.orau.org](http://www.orau.org)

Since 1951, students and faculty of University of Maryland have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 91 colleges and universities and a contractor for the US Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its member informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty, enjoy access to a multitude of opportunities for study and research.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORUA's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact: Jacques S. Gansler, Vice President for Research at the University of Maryland, or visit the ORAU home page at [www.orau.org](http://www.orau.org).

### **Orientation**

1102 Cole Field House, 301-314-8217  
Director: Gerry Strumpf  
[www.orientation.umd.edu](http://www.orientation.umd.edu)

The goal of Orientation is to introduce new students to the University of Maryland community. The Orientation Office offers a wide range of transitional programming and services for students and their families as they prepare to attend the University of Maryland.

For more information, see Office of Undergraduate Studies section in Chapter 6.

### **Pre-College Programs**

1101 West Education Annex  
Executive Director: Georgette Hardy DeJesus  
[www.precollege.umd.edu](http://www.precollege.umd.edu)  
Upward Bound Program, 301-405-6776  
Upward Bound-Higher-Educational Opportunities for Latino Achievers (HOLA), 301-405-0895  
Upward Bound-Math and Science Regional Center, 301-405-1773

The University of Maryland Pre-College Programs in Office Of Undergraduate Studies is comprised of the federally and state funded programs. These programs generate the skills and motivation necessary for success in post-secondary education. Pre-College Programs is part of the Federal TRIO Programs, which provides educational opportunity outreach programs designed to motivate and provide support to low-income and/or first-generation college bound high school students.

For more information, see Office of Undergraduate Studies section in Chapter 6.

### **Office of Professional Studies**

2103 Reckord Armory, 301-405-6534  
Judith K. Broida, Associate Provost and Dean  
[www.professionalstudies.umd.edu](http://www.professionalstudies.umd.edu)  
[www.onlinestudies.umd.edu](http://www.onlinestudies.umd.edu)  
[www.spoc.umd.edu](http://www.spoc.umd.edu)

The Office of Professional Studies serves as the portal for external organizations to the resources and talent of the university. The office designs, manages and administers graduate degree programs including the **Graduate Certificate and Master of Professional Studies** as well as professional educational programs.

In addition we offer the following programs and services:

**Online Studies**—OPS manages the fully online graduate programs on behalf of the campus.

**SPOC**—Single Point of Contact provides online services to off campus credit students including admissions, bookstore, financial aid, general inquiries, library, registration and many others. Most professional graduate programs are linked to SPOC and provide these services to their students.

**CEU's**—OPS administers the University of Maryland CEU's for the campus.

**Customer Service**—OPS provides a full set of online customer services for the campus's non-credit programs.

**Consulting and other services**—Utilizing the knowledge and skills of the campus faculty and staff, the Office of Professional Studies provides consulting to business, government, and not-for-profit organizations to assist them in developing customized workplace solutions.

### **Office of the Registrar**

Registrar: David Robb  
Mitchell Building, first floor, 301-314-8240  
[www.testudo.umd.edu](http://www.testudo.umd.edu)

The Office of the Registrar provides services to students and academic departments related to the processes of registration, scheduling, withdrawal, and graduation. The office also maintains students' academic records and issues transcripts. Staff members are available to students for consultation. For detailed information about registration procedures, student records, and academic regulations, see chapter 4.

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### Research: Maryland Center for Undergraduate Research

McKeldin Library, 301-314-6786

[www.ugresearch.umd.edu](http://www.ugresearch.umd.edu)

The Maryland Center for Undergraduate Research (MCUR), an initiative from the Office of the Dean of Office of Undergraduate Studies, was created as a resource for both faculty and students. The Center, which is located in McKeldin Library, serves as a clearinghouse for both on- and off-campus research opportunities for undergraduate students. Additionally, faculty members can share different models of incorporating undergraduate students into research programs, and ways that undergraduate research has been infused into the curriculum. For more information, see Office of Undergraduate Studies section in Chapter 6.

### Center for Teaching Excellence

0405 Marie Mount Hall, 301-405-9356

Director: Spencer Benson

[www.cte.umd.edu](http://www.cte.umd.edu)

The Center for Teaching Excellence supports departmental, individual and campus-wide efforts to enhance teaching and learning at the University of Maryland. The Center provides workshops, evaluation, development and support strategies and administers programs including: the Undergraduate Teaching Assistants; Lilly Teaching Fellows; Instructional Improvement Grants and others.

For more information, see Office of Undergraduate Studies section in Chapter 6.

### Tutoring

3215 J.M. Patterson, 301-405-4745

[www.umd.edu/AAP](http://www.umd.edu/AAP)

The Intensive Educational Development Program (IED) in the Academic Achievement Programs (AAP) provides tutoring services for eligible University of Maryland students. The schedule for tutoring, study skills, math support, and english support classes is available at 3215 J.M. Patterson Building. Academic support classes are offered for many lower-level CORE classes, including math and english classes, as well as for selected entry-level classes for numerous majors (for example Business or Biological Sciences). For a schedule of classes as well as eligibility status for AAP's services, please contact the Tutoring Coordinator at 301-405-4745 or [csermo@wam.umd.edu](mailto:csermo@wam.umd.edu). Also, please check AAP's webpage at [www.umd.edu/aap](http://www.umd.edu/aap) for schedules, job opportunities as tutors, and further information about the program.

## STUDENT PROGRAMS AND SERVICES

### Alumni Association

Samuel Riggs IV Alumni Center, 301-405-4678

[www.alumni.umd.edu](http://www.alumni.umd.edu)

The University of Maryland Alumni Association is a non-profit, membership organization for alumni of the University of Maryland, College Park. By taking traditional and innovative approaches to alumni programming, the alumni association fills many purposes, including the needs of students.

In conjunction with Senior Council and the Office of Student Affairs, the association supports professional development programs to prepare students for life in the "real world." Prospective and current students may apply for scholarships through the Maryland Alumni Association Scholarship Program. New graduates receive a one-year complimentary membership in the alumni association that includes its full range of benefits. The alumni association also offers graduates early access to the Terp Alumni Network, a free online alumni community featuring class e-notes and a searchable alumni directory. Upon graduation, the alumni association invites new graduates to join its Young Alumni Club, which provides activities for alumni who have graduated in the last 10 years.

In addition to student programming, the alumni association honors alumni who have distinguished themselves professionally and personally through the University of Maryland Alumni Association Hall of Fame and Annual Awards Gala. It provides special programs and services, such as consumer discounts, that benefit all alumni. It promotes continuing education through its cultural seminars and international travel program. Most of all the alumni association seeks to build the Terrapin Spirit by supporting more than 30 alumni clubs and academic chapters throughout the country and the world.

The alumni association has 30 staff members, is governed by a board of alumni volunteers, and is supported by countless other alumni volunteers around the country.

### Book Center

Stamp Student Union, lower level, 301-314-B00K

[www.ubc.umd.edu](http://www.ubc.umd.edu)

The Book Center provides a convenient (on-campus) selection of textbooks and general-interest books, including literature, technical books, and best sellers. It also offers a large selection of school and office supplies, computers and software to meet every educational need. The Book Center also carries a wide selection of imprinted clothes and related items.

The Book Center is open Monday, Tuesday, Wednesday, Thursday - 8:30 a.m. to 8:00 p.m., Friday, 8:30 a.m. to 6:00 p.m., Saturday, 10 a.m. to 5 p.m., and Sunday, 11 a.m. to 5 p.m. Additional hours for special events.

### Career Center

3100 Hornbake Library, South Wing, 301-314-7225

E-mail: [CareerHelp@ds9.umd.edu](mailto:CareerHelp@ds9.umd.edu)

[www.Career.Center.umd.edu](http://www.Career.Center.umd.edu)

8:30 a.m. – 4:30 p.m.

(refer to the Career Center website for current Resource Room and Same Day Assistance hours)

### Mission

The Career Center supports the University's mission and its academic programs by providing a variety of programs and services to meet the diverse career development and employment needs of degree-seeking students and alumni. The center teaches, advises and counsels students to make decisions about career interests, employment and further or continued education; it collaborates with academic departments, employers and alumni in the delivery of programs and services. All students should consider internship and/or coop opportunities an integral part of their academic endeavors. Students should incorporate these opportunities into the pursuit of their degree.

### President's Promise ([www.presidentspromise.umd.edu](http://www.presidentspromise.umd.edu))

The President's Promise goal is to give undergraduate students an integrated learning experience that goes far beyond the classroom. The focus is to help students navigate through all options to select the best opportunities to complement academic pursuits. Students may find opportunities in programs such as living/learning programs, research experiences, public and private sector internships, learning communities, international experiences, service-learning experiences, and opportunities for leadership. Dedicated faculty and staff will help students chart a course to enhance their academic experience.

### Resources

**Career and Employment Resource Room:** The Career & Employment Resource Room is a central point to learn about our many services and resources on career planning, internships, applying to graduate/professional school, and the job search. The Resource Room contains an extensive collection of books and videos; computer-assisted career exploration; computers with internet connection; and employer information.

The Resource Room is open to students at the University of Maryland and University of Maryland alumni, as well as students at other campuses, and the public.

**Career Assistance:** Same day career assistance appointments (30 minutes) and individual career counseling appointments (one hour) may be scheduled with Career Center staff. This time is used to assist students in identifying majors suited to their interests, helping them to understand the world of work, and preparing them for the job search by focusing on their skills and interests. We also provide assistance in the graduate school application process, and work with alumni in beginning their career changes.

**Career Center Web site:** The web site provides a calendar of events, job search information, career information and general announcements. Our newly redesigned homepage features continuously updated, timely career information for UM students and alumni.

**TERP (The Employment Registration Program) Online:** For fast and comprehensive access to employment opportunities, the Career Center recommends that every student register for TERP Online. TERP Online provides students with free access to Job Listings, On-Campus Interviewing, and Resume Referral as well as updated information on career and job fairs. TERP Online students receive special email bulletins on upcoming employment events related to their major.

**On-Campus Interviewing:** On-Campus Interviewing offers students the opportunity to interview on campus with a variety of employers for full-time, internship, or part-time positions. To participate in On-Campus Interviewing students must register on TERP Online. On-Campus Interviewing is also available to recent alumni.

**Job Listing:** Current job listings—including part-time, internship, graduate assistantship, and full-time positions—are accessible 24 hours via TERP Online. Additional jobs are posted on the bulletin boards outside the Center. Students seeking short term part-time jobs should consider our Quick Bucks email service.

**Credentials Services:** Every University of Maryland undergraduate and graduate student can establish a permanent professional file which holds letters of recommendation and background information to support applications for employment and graduate/professional school.

**Resume Referral:** This resume database allows students and alumni to present their qualifications to employers who are not interviewing on campus. By registering for TERP Online, the student joins a pool of candidates accessible to employers requesting applicants with specific skills or backgrounds to fill their current job openings. Employers review resumes and then contact qualified candidates to arrange office interviews or request additional information.

**Student Employment Training Program:** This hands-on, interactive training is customized to meet the needs of Maryland students with a companion supervisory training program. The student training focuses on building skills students can transfer to work after graduation. The supervisory training focuses on effective student employee management, sound job design, well-planned training, and consistent supervision.

**Virtual Mock Interviews:** They are self-produced practice interviews. Through use of an interactive kiosk, sessions are digitally recorded and streamed to an online account for your review.

**Terp Network:** This online system is available through the Career Center's web site, and connects students and alumni with parents of Maryland students or with UM alumni who can offer advice and mentoring in a given career field of interest.

**Federal Work Study Students Note:** Students eligible for Federal Work Study/Community Service positions should contact the Office of Student Financial Aid at: [www.umd.edu/FIN/](http://www.umd.edu/FIN/) or 301-314-9000

**Engineering Majors Note:** Additional support for part-time, internship and cooperative education positions is available through the Engineering Co-op and Career Services office at 301-405-3863.

**Business Majors Note:** Additional support for part-time, internship, cooperative education, and full-time positions is available through the Undergraduate Business Career Center office at 301-405-7103.

**Academic Courses:** The Career Center offers a variety of career development courses.

**EDCP108I – Academic Transition into Internships:** A one-credit course designed to provide students with the full experience of searching for, obtaining and successfully completing an internship. Themes may include understanding the relationship of internship experiences to majors and/or career paths, setting learning objectives, making the most of an internship experience, and evaluating offers.

**EDCP 108J – Job Search Strategies:** Designed for students who are seeking to learn more about strategies for landing full time employment and succeeding at work. Themes may include resume writing and interview preparation, determining fit and appropriateness of positions, setting realistic expectations for salaries and duties, appropriate work etiquette, networking, selecting references, on-the-job success, and managing work cultures and dynamics.

**UNIV099 – Internship Experience:** Designed to complement students supervised work experiences. Topics may include exploring career options, developing professional work skills, and examining the relationship between internship and academic coursework. Good academic standing, submission of transcript, and internship description and approval of instructor required.

**Career Development:** Special events bring students and employer representatives together for information exchange and employment contact. Stay tuned on the following special events through the Career Center's website:

- Career Center Events
- Internship and Part-Time Job Fair
- Law Schools Day
- Graduate Schools Day
- National Student Employment Week
- Spring Career Fair
- Fall Career Fair
- Maryland Metropolitan Area Teachers Interviewing Consortium
- Diversity Symposium

### **Counseling Center**

Shoemaker Building, 301-314-7651; Fax: 301-314-9206

[www.umd.edu/cc](http://www.umd.edu/cc)

Seeking help is a sign of strength! Many students encounter a variety of personal, social, career, and academic issues that call for assistance beyond advice provided by friends and family. Fortunately, the Counseling Center provides free and confidential counseling services to all University of Maryland students. To schedule an appointment call 301-314-7651 or stop by Shoemaker Building. Walk-in counseling is available to minority students every day from 3 p.m. to 4 p.m.

### **Counseling Center Services**

**Personal/Social Counseling.** You don't have to deal with your problems alone. In a warm and supportive environment, you can meet with a professional counselor to discuss any concern you may have related to your personal and social well-being. Among the topics many students discuss in counseling are self-esteem, stress, relationship issues, sex, family problems, and loneliness. You may see a counselor for individual counseling or join one of the many counselor-led support groups. Call 301-314-7651.

**Career Counseling.** A normal part of your development in college is identifying who you are in relation to a future career. You can get help with this process in individual career counseling at the Counseling Center. Your exploration may include taking career interest tests and interpreting the results with a professional counselor or taking advantage of a computerized career information system. Whether you are choosing a major, establishing career goals, or considering job opportunities, it is important to understand how your personality, values, and interests relate to your future professional life. Career counseling at the Counseling Center is a good place to begin. Call 301-314-7651.

**Academic Skills Counseling.** Many students have academic skills that they would like to improve. If you're tired of struggling because of your own weak areas, schedule an appointment to see the Counseling Center's education specialists. They can help you enhance such skills as reading, writing, note-taking, learning science and math material, and learning statistics. Workshops cover a range of topics, including study skills, exam skills, time management, English conversation, end-of-semester survival skills, and completing your thesis or dissertation. Call 301-314-7693.

**Workshops and Group Counseling.** You can gain strength to deal with your concerns by getting together with other people who share similar problems, interests, and goals. Each semester, the Counseling Center offers weekly support groups addressing a variety of topics, such as career exploration, dissertation support, procrastination prevention, and stress management. Recent group offerings have included, "Circle of Sisters," a support group for black women; "My Body-My Self: A Woman's Group," which addresses problems of body image and eating; and "Living with Illness," a group that assists people living with chronic illness. Call 301-314-7651.

**Support for Students with Disabilities.** The Counseling Center provides a range of services for students with disabilities, including help in locating interpreters for deaf or hard-of-hearing students; readers for visually-impaired students, blind students, and students with learning disabilities; and assistance with access to various buildings and facilities on campus. If you are a new or returning student, contact the Disability Support Services Office in the Counseling Center as soon as possible. Call 301-314-7682, voice and TTY.

**Returning Students Program.** If you are over 25 and returning to school after a break in your formal education, you probably have different needs than the traditional college student. The Returning Students Program is designed to help you with the transition to academic life. Workshops, counseling, and publications are available at the Counseling Center to make your adjustment to the university successful. Call 301-314-7693.

**Testing Services.** The Counseling Center administers tests for counseling purposes, such as career interest inventories, and also administers national standardized tests, such as the GRE, LSAT, MCAT, GMAT, and Miller Analogies. Call 301-314-7688.

**Research Services.** Group and individual consultation are available if you need assistance with research design and statistics and writing project proposals, theses, and dissertations. Call 301-314-7687.

**Support for Parents of College Students.** The Parent Warmline is a confidential telephone and email service for any parent concerned about his or her child's adjustment at college, including concerns impacting academic, social, and emotional realms, and overall mental health. Parent Warmline staff can be contacted at 301-314-7651 or [warmline@wam.umd.edu](mailto:warmline@wam.umd.edu).

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**Parent and Child/Adolescent Counseling and Evaluation.** University-connected families with children (ages 4 to 18) can receive a range of services, including individual and group therapies, school consultation, and parent consultation. Intellectual and emotional/behavioral evaluation is also available for youth with school and learning concerns. Call 301-314-7673.

### Counseling Center Hours

Counseling appointments (all students):

Monday-Thursday 8:30 a.m. to 9:00 p.m.  
Friday 8:30 a.m. to 4:30 p.m.

Students of Color and Rainbow walk-in counseling (no appointment needed):

Monday-Friday 3 p.m. to 4 p.m.

### Dining Services

1150 South Campus Dining Hall

Meal Plan Information, 301-314-8069

Terrapin Express, 301-314-8068

Student Employment, 301-314-8058

[www.dining.umd.edu](http://www.dining.umd.edu)

[umfood@dining.umd.edu](mailto:umfood@dining.umd.edu)

The University of Maryland Department of Dining Services is one of the top ten self-operated and self-supported dining services programs in the country. The Dining Services team is delighted to have the opportunity to support your academic endeavors! Several meal plan alternatives are available to meet your dining needs. These meal plans provide convenience and flexibility. Dining locations are located across campus – close to academic buildings and residence halls, and our two main dining rooms are even open until midnight on most weekday nights.

Our dining options include a large selection of traditional entrees as well as popular food choices. Dining rooms, designed as food courts, feature a total of 21 culinary stations including Sprouts, and all vegan station; Jalapeno Grill, Tex-Mex fare featuring made-to-order burritos; Cluckers, classic comfort food such as rotisserie chicken, mashed potatoes and seasonal vegetables; Global Gourmet, unique to The Diner and serves a different featured entrée nightly; and Don Lee's Asian Cuisine, South Campus' very own rice and noodle bowl concept. Many cafes and quick food locations as well as convenience shops are also available across campus to meet the needs of our students and campus community. For a complete list of our dining locations, hours and general information, please visit our Web site, [www.dining.umd.edu](http://www.dining.umd.edu) or call us to apply for one of our meal plans, 301-314-8069. Restaurants, Cafes and Dining Rooms are also open to the public.

**The Meal Plan.** Our **declining balance meal plan** allows students the flexibility to spend their points throughout the day and week within three-week time periods. Our students have increased flexibility to dine during our hours of operation with increased responsibility to use their points by set dates. This plan, designed by University of Maryland students, offers variety, flexibility and convenience. Flexible hours allow for carryout and late night service. The meal plan is accessed using students' University of Maryland issued Student ID/Meal Plan card and must be presented at the time of purchase. **The Meal Plan Agreement is included in the Housing Agreement and is required if you reside in residential housing on campus.** Several meal plan alternatives are available; please visit our Web site, [www.dining.umd.edu](http://www.dining.umd.edu).

**Terrapin Express.** Terrapin Express is a pre-paid debit account, not a substitute for the meal plan. It is a wonderful option to supplement the meal plan or a great alternative for non-resident and apartment students. Terrapin Express accounts are available through the Contract Office at 1109 South Campus Dining Hall and at McKeldin Library. Terrapin Express accounts are available to all students, faculty and staff. Funds roll over between semesters, and additional funds may be added at the Contract Office, McKeldin Library and on-line through Testudo web services. Check online for a complete listing of participating dining and non-dining locations.

We are confident that you will be impressed by the quality and exceptional selections available throughout the dining locations across campus.

### Office of Fraternity and Sorority Life

1110 Stamp Student Union

Office hours: Monday – Friday, 8:30 – 4:30

[www.greek.umd.edu](http://www.greek.umd.edu)

Social and community service-based fraternities and sororities, and their leadership, are advised and supported by the staff in the Office of Fraternity and Sorority Life. The office also advises the four student governing councils: The Interfraternity Council (IFC), the Panhellenic Association (PHA), the Pan-Hellenic Council (PHC) and the United Greek Council (UGC). The office also manages university-owned fraternity and sorority houses and coordinates off-campus houses.

### University Health Center (UHC)

Campus Drive Building 140

301-314-8180; Fax: 301-314-7845

[www.health.umd.edu](http://www.health.umd.edu)

The University Health Center, located on Campus Drive, across from the Stamp Student Union, is a nationally accredited health care facility. The UHC is open Monday through Friday, 8 am to 7 pm, Saturday 11 am – 3 pm, and closed Sunday with varied hours during semester breaks, holidays, and summer sessions. Students are seen by appointment for routine care between 9 a.m. and 5 p.m. on weekdays. Medical services are limited after 5 p.m. and on Saturdays. Urgent Care services are available without an appointment. Some departments schedule their own appointments. Telephone numbers are available below. The Center for Health and Wellbeing (CHWB), a satellite of the UHC, is located in O102 Campus Recreation Center. Call the CHWB for hours of operation.

Every currently registered student is eligible to use the UHC. There is a \$10 fee for visits with most of our providers. There is a no-show fee for missed appointments not canceled within 24 hours. There are additional fees for laboratory, radiology/imaging, pharmacy, immunizations, allergy injections, casts, physical therapy, massage, acupuncture, some health education programs, counseling services, and medications and/or supplies dispensed through the pharmacy and/or medical units. These charges are posted to the student's account at the Bursar's Office, or paid at the UHC Cashier's Office (charges paid for at the UHC will not appear on the student account).

MAMSI provides a group health insurance policy to University of Maryland, College Park students. Students are eligible to enroll at the beginning of the fall and spring semesters and Summer Session I. **The UHC is NOT a participating provider with any other health insurance company.** Your insurance company may or may not reimburse you for services you receive at the UHC. At the request of the student, via a signed "authorization" form, a coded bill will be provided. The student may submit this bill to the insurance company of choice for reimbursable services.

All students' medical records are strictly confidential and may only be released by the student's consent or through a court ordered subpoena. The UHC is in compliance with the Federal **Health Insurance Portability and Accountability Act**.

In addition to the services listed above, the UHC also provides: urgent care and primary care for illness and injury, men's and women's reproductive health, anonymous HIV/AIDS testing, asthma management and education, sports medicine, nutrition education, mental health services, travel clinic, substance abuse counseling, and a Faculty/Staff Assistance Program. Individual and group health education programs are available on topics such as sexual health and contraception, sexual assault, stress management, substance abuse, eating disorders, and health promotion.

Maryland State Law requires that ALL students living in campus owned housing receive the Meningitis vaccine or sign a waiver stating that they have chosen not to receive the vaccine. The vaccine and waiver are available at the UHC. The waiver is also available on-line at [www.umd.edu/health](http://www.umd.edu/health).

For more information on the University Health Center, visit [www.health.umd.edu](http://www.health.umd.edu), or e-mail: [Health@umail.umd.edu](mailto:Health@umail.umd.edu)

### UHC Phone Numbers

|                   |              |                 |              |
|-------------------|--------------|-----------------|--------------|
| Appointments      | 301-314-8184 | Nutrition       | 301-314-8128 |
| Information       | 301-314-8180 | Pharmacy        | 301-314-8186 |
|                   |              | Sexual Assault  |              |
| Acupuncture       | 301-314-8128 | Info Line       | 301-314-2222 |
|                   |              | Substance Abuse |              |
| Center for Health |              | Program         | 301-314-8106 |
| and Wellbeing     | 301-314-1493 | Therapeutic     |              |
| Health Promotion  | 301-314-8128 | Massage         | 301-314-8128 |
| Health Insurance  | 301-314-8165 | Women's Health  | 301-314-8190 |
| Mental Health     | 301-314-8106 |                 |              |
| Victim Advocate   | 301-314-2222 |                 |              |

### Housing: Resident Life

Annapolis Hall, main level, 301-314-2100

E-mail: [reslife@accmail.umd.edu](mailto:reslife@accmail.umd.edu)

[www.resnet.umd.edu](http://www.resnet.umd.edu)

The Department of Resident Life is responsible for management of the residence halls as well as the cultural, educational, recreational and social programs and activities therein.

While living in a Maryland residence hall is not required, nine of every ten students in Maryland's freshman class make the choice to live on campus. More than 70 professional and graduate staff and over 300 undergraduate student employees meet the needs of resident students.

There are rooms for approximately 8,200 undergraduate students in 36 residence halls. Three different styles of living are available to campus residents: traditional, suites and apartments. Within traditional housing, where most first- and second-year residents live, single, double, triple and quadruple room occupancy exists. Our nationally acclaimed living-learning programs include: Beyond the Classroom, CIVICUS, College Park Scholars, Hinman CEOs, Gemstone, Global Communities, Jimenez-Porter Writers' House, Language House, Honors Humanities and University Honors. All of these programs add to the diversity of on-campus housing options. All rooms have a cable, data and telephone jack for each student.

First time freshmen are guaranteed on-campus housing provided they return their *Maryland Planner* including the Enrollment Confirmation and Housing and Dining Services Agreement along with the \$200 enrollment deposit, by May 1. Transfer students who want to live on campus should complete the *Maryland Planner* as well and will be allotted housing on a space available basis.

### Office of Student Conduct

2118 Mitchell Building, 301-314-8204  
[www.studentconduct.umd.edu](http://www.studentconduct.umd.edu)

It is the mission of the Office of Student Conduct to resolve allegations of misconduct under the *Code of Student Conduct* and *Code of Academic Integrity* in a manner consistent with the core values of fairness, honesty and integrity while promoting the University's educational mission. Essential to this mission is to enhance the development of character, civility, citizenship, individual/community responsibility, and ethics. University students play a significant role in considering the behavior of their peers and are asked to assume positions of responsibility as members of the university's student judiciary. The following tenets guide this mission:

- To regard each student as an individual, deserving individual attention, consideration, and respect.
- To consider the facts fully and carefully before resolving any case.
- To speak candidly and honestly with each student.
- To hold each student to a high standard of behavior, both to protect the campus community, and to promote student ethical development.
- To recognize the reality of human fallibility, as well as the stresses associated with collegiate life, and to demonstrate compassion, understanding, and a sense of humor.
- To contribute to the educational mission of the University by designing policies, conducting programs, and offering instruction that contribute to the intellectual and ethical development of the entire student body.

**General Statement of Student Responsibility.** Students are expected to conduct themselves at all times in a manner consistent with the University responsibility of ensuring to all members of the campus community the opportunity to pursue their educational objectives, and of protecting the safety, welfare, rights, and property of all members of the University. Specific expectations for student conduct are outlined in the *Code of Student Conduct*, Appendix C, and the *Code of Academic Integrity*, Appendix O.

**Disciplinary Procedures.** Students accused of violating University regulations are accorded fundamental due process in disciplinary proceedings. Formal rules of evidence, however, shall not be applicable, nor shall deviations from prescribed procedures necessarily invalidate a decision or proceeding unless significant prejudice to one of the parties may result. University procedures are outlined in the *Code of Student Conduct* and *Code of Academic Integrity* supplemented by materials provided by the Office of Student Conduct to assist students who are facing accusations of misconduct.

### Nyumburu Cultural Center

301-314 -7758  
301-314-8303 Fax  
Campus Drive  
[www.nyumburu.umd.edu](http://www.nyumburu.umd.edu)

The Nyumburu Cultural Center has served as a major resource of cultural, historical, and social programming at the University of Maryland, College Park for more than thirty years. The Center works closely with student, faculty, and community organizations. The Nyumburu Cultural Center offers a variety of socio-cultural, musical, educational and artistic programs to the campus community. The nature of the diverse programming and activities is based on the African American, African and Caribbean Diaspora experience(s). Nyumburu is home of the Maryland Gospel Choir,

Shades of Harlem (performing arts ensemble), *The Black Explosion* Newspaper, Male Spokesmodel Competition, Miss Unity Scholarship Pageant, Juke Joint, Gospel Happy Hour, Leadership Series, Nyumburu Jazz Club, Kwanzaa Celebration, Cultural Dinner during Black History Month, Literature Conference, Homecoming Alumni Tailgate, Annual Talent Showcase, and Annual Student Awards Banquet.

Nyumburu's staff are advisors to many campus student organizations: Black Student Union, African Student Association, The Maryland Gospel Choir, *The Black Explosion* Newspaper, Sigma Gamma Rho Sorority Inc. Delta Sigma Theta Inc., Alpha Nu Omega Sorority Inc., and Dimensions Modeling Group to name a few.

Nyumburu presents blues, jazz and gospel music concerts as well as academic courses in Creative Writing (ENGL 294), Blues (AASP 298V) and Jazz (AASP 298U) for three credits each. Maryland Gospel Choir students earn 1-credit (MUSC 329E).

The Multi-purpose Room, Conference Rooms, Computer Labs, and Amphitheatre of the Nyumburu Cultural Center are open to the students, faculty and staff of the University of Maryland. Come in and interact with us, meet other students and make your ideas and wishes known. Our staff's goal is to make Nyumburu a cultural center that is "Your Home Away From Home."

### Recreation Services

Campus Recreation Services  
1115 Campus Recreation Center, 301-405-PLAY (Information);  
301-314-5454 (Rec-Check)  
[www.crs.umd.edu](http://www.crs.umd.edu)

Campus Recreation Services (CRS) offers a wide variety of recreation programs including aquatics, fitness programs, informal recreation, intramural sports, non-credit instruction, outdoor recreation, and sport clubs.

CRS has some of the most advanced recreation, sports, and fitness facilities in the nation. The CRS facilities include the Campus Recreation Center (CRC), Ritchie Coliseum, Reckord Armory, Cole Fieldhouse and the weight and fitness areas in the Health and Human Performance (HHP) building.

The Campus Recreation Center has two indoor and two outdoor pools for lap swimming and diving. The CRS aquatic program also offers swimming lessons, and lifeguard training.

CRS offers a wide variety of fitness programs throughout the week at CRC and Ritchie Coliseum. These include low-impact, step, and water aerobics, cardio-boxing, and sport conditioning. CRS Informal Recreation programs allow students to enjoy their favorite activity at their leisure, whether it is using cardiovascular equipment, lifting weights, jogging, or playing racquetball, volleyball, basketball or wallyball. CRS has weight rooms and fitness centers located in the CRC, Ritchie Coliseum, and HHP. The fitness centers feature stairclimbers, bikes, rowers, total body conditioners, and treadmills. Weight rooms have a variety of free-weights and weight machines. The CRC also has racquetball/handball/wallyball and squash courts.

Students looking to play team or individual sports or take part in special sporting events will want to participate in the CRS Intramural Sports program. Students can participate year-round in team sports such as basketball, football, and soccer. Individual and dual sports include golf, racquetball, and many more. Intramural sports are structured activities that are open to all men and women from the campus community. Participants can select their own level of competition and play in either men's, women's, grad/fac/staff or coed leagues.

The Outdoor Recreation Center (ORC) is located in the northwest corner of the Campus Recreation Center. The ORC offers outdoor adventures and clinics throughout the year. Take a backpacking trip, learn how to rock climb, or try white-water kayaking. The Climbing Wall and Challenge Course are two features of the ORC where students may challenge themselves both physically and mentally, increasing interpersonal skills and self-confidence. The ORC also has a resource library for planning your own trips, a bike repair shop, and equipment rentals.

University of Maryland Sport Clubs are student organizations that have been formed by students with a desire to participate in their favorite sport or learn a new sport. CRS has more than 30 clubs to choose from. Some current CRS Sport Clubs include: Aikido, Equestrian, Fencing, Field Hockey, Lacrosse, Racquetball, Rugby, Sailing, Soccer, and Tae Kwon Do.



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### Stamp Student Union and Campus Programs

3100 Stamp Student Union, 301-314-DESK  
[www.union.umd.edu](http://www.union.umd.edu)

The Adele H. Stamp Student Union is the university's "community center." More than 17,000 students, faculty, staff members, and campus guests visit the Union daily to take advantage of its services, programs, and facilities. The Union offers lounge space, a variety of information services, recreation and leisure activities, student-sponsored programs, visual arts, retail outlets, and more than 40,000 square feet of reservable space.

#### Information Services

- Information Center located on the first floor, 301-314-DESK
- Bulletin boards located throughout the building
- Display showcases located throughout the building

#### Recreation and Leisure

- Hoff Movie Theatre, 301-314-HOFF
- Terp Zone, including full-service bowling lanes, "Lunar Bowling," billiard tables, video games, and three big-screen TVs, 301-314-BOWL

#### Student-Sponsored Programs

- Student Entertainment Events (SEE), a student-directed program board whose committees plan games, tournaments, concerts, lectures, outdoor recreation trips, 301-314-8359
- Student Tutorial Academic Referral Center (STAR Center), offering tutor listings and test files, 301-314-8359
- Student Involvement Suite has offices for student groups and Student Government Associations
- Graduate Student Government

#### Art and Learning Center, 301-314-ARTS

- Art and Learning Center, a visual arts work and teaching center, offering mini-courses and arts services
- Union Art Gallery, located on the first floor

#### Food and Retail Outlets

- Chevy Chase Bank, 301-864-8722
- University Book Center (basement level), 301-314-BOOK
- Food Services: Maryland Food Co-op (301-314-8089), Marketplace Deli (301-314-DELI), Taco Bell (301-314-6569), McDonald's (301-314-1489), Adele's Restaurant (301-314-8022), Coffee Bar (301-314-CAFE), Panda Express (301-314-6111), Sbarros (301-314-4105), Steak Escape (301-314-9665), Freshens (301-314-1310), Chick-Fil-A (301-314-6568), Subway (301-266-7827)
- Mailboxes Etc., a full-service postal and packaging facility, 301-314-9982
- Ticket Office, offering campus performance tickets, and a full Ticket Master Outlet, 301-314-TKTS
- Union Shop 301-314-7467, featuring snacks, sodas, newspapers, and magazines

#### Reservable Space

The Union offers meeting rooms that accommodate groups from 8 to 1,000 people. For reservations, or catering information, contact the Union Reservation Office, 301-314-8488.

#### Stamp Student Union Hours

The Union is open Monday through Thursday, 7 a.m. to midnight; Friday, 7 a.m. to 1:30 a.m.; Saturday, 8 a.m. to 1:30 a.m., and Sunday, 11 a.m. to midnight.

#### Community Service-Learning

1120 Stamp Student Union, 301-314-2273  
[www.csl.umd.edu](http://www.csl.umd.edu)

The Office of Community Service-Learning (CLS) promotes service-learning, as an integral aspect of education and fosters university engagement within the larger community. The CSL website contains information and resources such as an interactive database of 800+ community agencies, handouts, and step-by-step guidance for getting involved in service. CSL offers on-site personal assistance, a weekly listserv of service opportunities, and presentations across campus. CSL educational materials also include resources about social issues, leadership, curriculum development, and strategies for facilitating reflection.

#### Resources For Students

The office supports students engaged in service through monthly networking meetings, an annual Leaders in Service retreat, and a three-credit course that links the issues of leadership, service, and social change. The office participates in campus-wide resource fairs, coordinates

volunteer recognition events and programs, and offers a consultation and presentations to any student group or organization. Each summer, OCSL offers a community-service Terrapin Expeditions for New and Transfer Students (Service TENTS).

#### Resources For Faculty

CSL promotes service-learning within academic courses across disciplines and within the living and learning communities. To that end we offer faculty workshops, individual consultation, sample syllabi, a lending library, and an on-line faculty handbook for service-learning. Programs for faculty include the service-learning undergraduate teaching assistant program, annual instructional improvement grants, and an ongoing assessment program.

#### America Reads

In collaboration with UM's office of financial aid and the Prince George's County Public School system, over 100 Maryland federal work-study students serve as reading mentors in eleven under-sources schools in our county. America Reads also sponsors Partners in Print which encourages family literacy in America Reads schools.

#### Resources For the Community

Community agencies recruit students, faculty and staff by attending the annual involvement fair, participating outreach tables in the student union, and posting information on our interactive database and weekly listserv. OCSL sponsors agency orientation programs and offers individual consultation to assist agencies with more targeted recruiting.

#### Campus Programs

0110 Stamp Student Union, 301-314-7174  
[www.union.umd.edu/campusprograms](http://www.union.umd.edu/campusprograms)

The mission of Campus Programs is to support and complement the university's academic mission and to enhance the educational experience of students through exposure to and participation in social, cultural, recreational, leadership, intellectual, and governance activities.

A primary focus of the mission is the concept of student involvement. Campus Programs is committed to providing opportunities for all students to be involved in experiences on campus and in the community that enhance their overall development.

**Student Organizations.** Campus Programs registers all student organizations at the university and makes available a directory of more than 600 groups on their web site. Organization support services including workshops, accounting assistance, advisors' workshops, and leadership training programs for organization leaders as well as involvement sessions offered for classes and through orientation are just some of the ways involvement is nurtured for organizations and individuals.

**Organization Advising.** Major student groups such as the Student Government Association, the Homecoming Committee, and SEE Events as well as multicultural groups such as the Asian American Student Union, Black Student Union, Pride Alliance, and Latino Student Union receive direct advising from the staff of Campus Programs. Other student groups can also obtain help from the staff by request. Staff will assist groups in programming, securing a faculty advisor, officer transitions, and in efforts to create new organizations.

**Leadership Development.** Campus Programs offers a wide range of credit-bearing leadership courses offered in conjunction with the Counseling and Personnel Services Department in the College of Education. The office's web site details these offerings. In addition, the staff offers a wide range of training experiences in interpersonal and organizational development ranging in format from half-day seminars and weekend workshops to the full semester Terrapin Leadership Institute.

**Commuter Students.** Campus Programs provides outreach and advocacy for students commuting to campus. Staff coordinate advising for individual commuter students and the University's Commuter Association.

**Programs and Leisure Learning Opportunities.** The Union and Campus Programs staff work with student volunteers and leaders to provide options for out of class engagement in recreational options including the Hoff Movie Theater, the Art and Learning Center (offering non-credit courses), the Union Gallery (featuring regular displays of the visual arts), the Terp Zone (bowling, billiards, and more), and the regular offerings of Weekends at Maryland including First Friday programs and Phat Friday concerts. A complete listing of leisure options is featured in the *Diamondback* in a weekly calendar for both weekday and weekend events.

Off-Campus Housing Services maintains up-to-date computerized listings of various rental housing options (both vacant and to share). Area maps, apartment directories, transportation information and resources about living off campus are available in the office and on-line.

## Religious Programs

The following chaplains and their services are available:

## Baptist

Mr. Jeffrey Buffkin  
2120 Memorial Chapel  
301-405-8443  
ibuffkin@umd.edu

## Black Ministries

Rev. Dr. Ruby Moone      1112 Memorial Chapel  
301-405-8445  
Rrmoone2@aol.com

## Christian Science

Rev. Bob Snyder                      2118 Memorial Chapel  
301-474-0403  
rsnyder@umd.edu

**Church of Jesus Christ of  
Latter Day Saints**

Mr. David Premont                      premontde@ldscs.org

### Eastern Orthodox

Rev. Kosmas Karavellas  
Ms. Pat Jenkins, Assistant

Sts. Constantine and Helen Greek  
Orthodox Church, Riva Rd  
Annapolis, MD 21401  
301-261-8218  
office@schgochurch.org  
jenkins58@hotmail.com

### Episcopal/Anglican

Rev. Dr. Peter Antoci  
2116 Memorial Chapel  
301-405-8453  
eaterps@umd.edu

## Hindu

Rev. Kiran Sankhla  
2112 Memorial Chapel  
301-570-6426  
muraris2002@yahoo.com

## Jewish - Hillel

Ari Israel, Director  
7612 Mowatt Lane, College Park  
301-422-6200  
aisrael@hillelmd.org

## Jewish - Chabad

Rabbi Eli Backman      7403 Hopkins Ave., College Park  
301-277-2994  
chabad@umd.edu

## Lutheran

Rev. Elizabeth Platz 2103 Memorial Chapel  
Ms. Gail Douglas, Assistant 301-405-8448  
lutheran@umd.edu

## Muslim

Rev. Ali Darwish  
Ms. Angela Busby, Assistant

2118 Memorial Chapel  
301-314-5259  
ali@darwish.org

## Roman Catholic

Rev. William Byrne  
Ms. Angela Busby, Assistant

Catholic Student Center  
4141 Guilford Rd., College Park  
301-864-6223  
frbill@catholicterps.org  
angela@catholicterps.org

## United Campus Ministry

Rev. Holly Ulmer  
2101 Memorial Chapel  
301-405-8450  
[ulmer@umd.edu](mailto:ulmer@umd.edu)

## United Methodist

Rev. Kim Capps                      2102 Memorial Chapel  
301-405-8451  
umc@umd.edu

## Transportation Services

Regents Drive Garage, 301-314-PARK  
[www.transportation.umd.edu](http://www.transportation.umd.edu)

## Parking

The Department of Transportation Services (DOTS) is responsible for managing and maintaining more than 16,000 parking spaces on the University of Maryland campus. All students who plan to park a licensed motor vehicle in one of these spaces must either register for a parking permit at the DOTS office, park at paid meters or in a cashier-attended lot. **Please note:** Due to construction projects on campus the number of parking spaces could be dramatically reduced. Campus residential freshmen and resident sophomores are eligible to register for a parking permit.

Because the University of Maryland has limited parking spaces, parking regulations are strictly enforced. Illegally parked vehicles, as well as those vehicles not displaying a campus parking permit in areas requiring permits will be ticketed, and students with outstanding parking fines may be barred from registration.

Visit the DOTS Web site for complete procedures and parking regulations, disabled parking information, visitor parking areas, alternative transportation information, parking registration rates, motor vehicle assistance program information, schedule of fines, and other information is available.

**Shuttle-UM (301-314-2255)**

Shuttle-UM transit system is a unit within the Department of Transportation Services and is primarily a student-managed operation which is predominantly supported by student fees. Shuttle-UM provides Commuter, Evening, NITE Ride, Paratransit, and Charter Services to university students, faculty, and staff while classes are in session. Schedules are available at the Stamp Student Union Information Desk, the Department of Transportation Services, Shuttle-UM in lot 4e, and on the DOTs Web site at [www.transportation.umd.edu](http://www.transportation.umd.edu).

## Carpooling

Commuter students who are able to form a carpool with up to 3 other students can register for the Smart Park carpool program, which rewards carpools by usually offering access to move convenient parking lots as well as crediting back a portion of their permit fees. To register, and to access the Smart Park database, visit the Department of Transportation Services Web site at [www.transportation.umd.edu](http://www.transportation.umd.edu).

### Park and Rides (Burtonsville and Laurel)

The Department of Transportation Services is offering free weekday transportation to faculty, staff, and commuter students in the form of park & rides. This service runs from the park & ride lots to the College Park campus. The Laurel Park & Ride lot is located on the northbound side of Route 197 (Laurel-Bowie Road) approximately 1/8 mile north of the intersection of Route 197 and Contee Road. The Burtonsville Park & Ride lot is located about 10 miles from campus and is between routes 198 and 29. Additional information can be found on the DOTS Web site.

## CHAPTER 4

# Registration, Academic Requirements, and Regulations

## University of Maryland Student Academic Success-Degree Completion Policy

**University of Maryland policy stipulates that** full-time degree seeking students are expected to complete their undergraduate degree program in four years. To meet this expectation, students must plan carefully in consultation with an academic advisor; complete 30 credits each year (which is usually accomplished through a course load of 14 to 16 credits per semester); satisfy general education, prerequisite and other course requirements with acceptable grades in a timely manner; and meet the benchmarks. Academic units provide the benchmarks and sample templates of multi-semester plans leading to four-year graduation. Students are required to map out individualized four-year plans, consistent with these guidelines and benchmarks, and are responsible for updating them as circumstances change. Students who do not meet benchmarks are required to select a more suitable major. Students who change majors must submit a realistic graduation plan to the academic unit of the new major for approval. Any student who completes ten semesters or 130 credits without completing a degree is subject to mandatory advising prior to registration for any subsequent semester. Students with exceptional circumstances or those who are enrolled in special programs are required to develop a modified graduation plan that is appropriate to their situations. In all cases, students are responsible for meeting progress expectations and benchmarks required for their degree programs.

Every student should contact his or her college or department advisor to obtain the relevant materials for developing a four-year graduation plan and required benchmarks.

For information about this policy visit: [www.ugst.umd.edu/academicsuccess.html](http://www.ugst.umd.edu/academicsuccess.html) and [www.ugst.umd.edu/faqs-successpolicy.html](http://www.ugst.umd.edu/faqs-successpolicy.html)

## REGISTRATION

Office of the Registrar  
Mitchell Building, 301-314-8240  
[www.testudo.umd.edu](http://www.testudo.umd.edu)

To attend classes at the University of Maryland, College Park, it is necessary to process an official registration. Specific registration dates and instructions are printed in the Schedule of Classes and on the Testudo web site. The Schedule of Classes is issued for the spring, fall and summer sessions. Winterterm information is printed in the Fall Schedule of Classes, and on the Testudo web site.

**Newly admitted students** are invited, and strongly encouraged to attend an orientation session (see chapter 3 for Orientation information). Advising and course registration are part of the orientation process. All newly admitted students must meet with an advisor prior to registration. Additionally, newly admitted freshmen and transfer students are required to provide proof of immunization for measles, rubella, mumps and tetanus/diphtheria. Additionally, Maryland law requires resident hall students to either provide proof of vaccination against meningococcal disease or seek an exemption from this requirement.

**Registration Process:** Currently enrolled students are invited to early registration by appointment. Registration appointments for the fall semester begin in April, and appointments for the spring semester begin in late October. Registration can be processed on the Testudo web site or in person. Open registration follows early registration, and continues up to the first day of classes. During this time students may make schedule adjustments or process an original registration. The schedule adjustment period begins on the first day of classes. All registration transactions, either on-line or in person, are final unless a student processes a cancellation of registration.

**Cancellation of Registration:** Students who register and later decide not to attend the University must cancel their registration with the Office of the Registrar prior to the official first day of classes. Failure to cancel registration will result in a financial obligation to the University of Maryland even though a student does not attend class. The University reserves the right to cancel registration for students who fail to meet their financial obligations.

**Schedule Adjustment:** The schedule adjustment period is the first 10 days of classes for the fall and spring semesters, the first 5 days of classes for Summer Sessions I and II, and the first 3 days of classes for Winterterm and 3-week accelerated Summer courses. Courses may be added, when space is available, during the schedule adjustment period, and will appear

on the student's permanent record along with other courses previously listed. Courses dropped during this period will not appear on the student's permanent record.

Departments may identify courses or sections of courses (with the approval of the Office of the Senior Vice President for Academic Affairs), which after the first five days of the schedule adjustment period in Spring and Fall semesters, shall require faculty or departmental approval for students to add.

- During the schedule adjustment period **full-time undergraduates** may drop or add courses, or change sections or credit level without financial penalty provided they remain full-time students (registered for 12 or more credits). Consult the Schedule of Classes for information and penalties associated with changing from full-time to part-time.
- **Part-time undergraduates** (fewer than 12 credits) may also add, drop and change sections, as well as change credit level, but they should consult the deadline section in the Schedule of Classes to avoid incurring additional charges.
- Grading Method (including pass-fail) may be changed only during the schedule adjustment period.
- In the case of students who are advised in the Division of Letters and Sciences when Dean's approval is required, the Dean for Office of Undergraduate Studies shall assume the responsibilities normally delegated to the Dean.

### After Schedule Adjustment

- Courses may not be added without special permission of the department and the dean of the academic unit in which the student is enrolled.
- All courses for which the student is enrolled shall remain as a part of the student's permanent record. The student's status shall be considered full-time if the number of credit hours enrolled at this time is 12 or more.

### Classification of Students

Official classifications of undergraduate students are based on earned credits as follows: freshman, 1-29 semester hours; sophomore, 30-59; junior, 60-89; and senior, 90 to at least 120.

## Registration, Academic Requirements, and Regulations 31

- An official class list for each course being offered is issued to the appropriate department by the Office of the Registrar. Electronic rosters are provided to all faculty with email accounts. Students are not permitted to attend a class if their names do not appear on the class list. Instructors must report discrepancies to the Office of the Registrar.

### Drop Period

The drop period for undergraduate students will begin at the close of the schedule adjustment period and terminate at the end of the tenth week of classes for the fall and spring semesters, and at a comparable time for summer sessions and Winterterm. Consult the Schedule of Classes for dates.

During this period a student may drop a maximum of four credits. However, if the course carries more than four credits, the student may drop the entire course, or in the case of a variable credit course, reduce the credit level by up to four credits. Drops during this period will be recorded on the student's permanent record with a notation of "W" and will be considered to represent a single enrollment (one of two possible) in the course. This mark will not be used in the computation of a student's cumulative grade point average.

### Withdrawal and Leave of Absence from the University

Students admitted to the University of Maryland are expected to make regular and consistent progress towards the completion of their degree. However, the University understands that in exceptional circumstances a student may find it necessary to completely withdraw from all classes. The University considers such an interruption to be very serious as it delays normal progress towards the degree. Students should not withdraw for frivolous reasons or to avoid the consequences of ignoring their academic responsibilities. Any student considering withdrawal is strongly encouraged to meet with his or her academic college advisor before leaving the University.

**Potential Implications:** Withdrawing or taking a leave of absence from the University may have serious implications for international students, students receiving financial aid or students residing in on-campus housing. Students are advised to contact the appropriate offices before finalizing withdrawal or leave of absence plans.

Student Financial Services Office: 1135 Lee Building, 301-314-9000  
Department of Resident Life: 2100 Annapolis Hall, 301-314-2100  
International Education Services: 3117 Mitchell Building, 301-314-7740

**Withdrawal:** A withdrawal is available anytime between the first and last day of classes. Students must submit written notice of withdrawal to the Office of the Registrar no later than the last day of classes. A student's return to the University is contingent upon the conditions outlined in "Return to the University" below.

**Leave of Absence:** A leave of absence is a type of withdrawal and is available for students wishing to take time away from the University with the intention of returning the following semester. The leave of absence status is especially helpful for recipients of federal financial aid because they are not considered to be withdrawn provided they do return and complete the following semester. Students may apply for a leave of absence only during the last 60 days of the semester. A student's return to the University is contingent upon the conditions outlined in "Return to the University" below.

**Return to the University:** Normally, a student may withdraw or take a leave of absence from the University only once during matriculation as an undergraduate. Students who find it necessary to leave the University are required to petition the Faculty Review Board in order to return. Students who have earned a minimum 2.0 cumulative GPA, with no previous withdrawal or leave of absence, are exempt from this requirement. Students who withdraw or take a leave of absence while on academic probation, or those returning from dismissal, are always required to petition the Faculty Review Board. Students are also required to complete a Reinstatement Advising Meeting with their academic college advising office before the petition will be considered by the Faculty Review Board.

### Additional Withdrawal/Leave of Absence Information:

- The effective date of withdrawal or leave of absence for the purposes of refunds is the date that the notice is received by the Office of the Registrar. Notation of withdrawal/leave of absence and the effective date will be posted to the student's academic record. Instructors and college offices will be notified of all withdrawn students. The deadline date for submitting the withdrawal for each semester is the last day of classes. Students should contact the Office of Undergraduate Admissions for reenrollment information.

- The repeat policy will not apply to courses taken during the academic semester from which the student is officially withdrawn.

**Military Call-ups:** It is the intent of the University of Maryland, College Park, to facilitate the withdrawal or change in registration and the reenrollment of students who are called to active military duty during the semester. The student (or a representative) should take a copy of the military orders to the Office of the Registrar and process "withdrawal" or "change in registration" papers. Detailed information about this process may be obtained from the Office of the Registrar. Withdrawal for active military service will have no effect on any subsequent request to withdraw from the University.

### General Education Requirements

See chapter 5.

### Enrollment in Majors

A student who is eligible to remain at the University of Maryland, College Park, may transfer among curricula, colleges, or other academic units except where limitations on enrollments have been approved. By the time they complete 60 credits, students are expected to declare a degree-granting major. Students must be enrolled in the major program from which they plan to graduate, when registering for the final 15 hours of the baccalaureate program. This requirement also applies to the third year of the combined, pre-professional degree programs. See pg. 43 for information on double majors and double degrees.

### Credit Hours and Maximum Credits Each Semester

No baccalaureate curriculum requires fewer than 120 semester hours. The semester hour, which is the unit of credit, is the equivalent of a subject pursued one period a week for one semester. Two or three hours of laboratory or field work are equivalent to one lecture or recitation period.

In order for undergraduate students to complete most curricula in four academic years, their semester load must range from 12 to 19 hours (30 to 36 hours each year) toward the degree. By policy, undergraduates may not exceed the following maximum credit loads without the prior approval of their Dean: 20 credits in a 15 week semester; 8 credits in a 6 week summer term, or 4 credits in an accelerated 3 week term.

### Concurrent Undergraduate–Graduate Registration

An undergraduate degree seeking student at the University of Maryland may, with the approval of his or her Dean, of the department and the instructor offering the course, and of the Graduate School, register for graduate courses (600 level and above) that will be recorded as "for graduate credit only" and that may be applied towards an advanced degree at this university or elsewhere. Students eligible for this option normally will have achieved Junior standing, will have a GPA of at least 3.0, and will have successfully completed the prerequisite courses with a grade of "B" or better. The student must submit a plan of study that shows that taking graduate courses will not unduly delay completion of requirements for the bachelor's degree. The total of graduate and undergraduate credits attempted in any semester may not be more than eighteen. The graduate credits so earned will not count towards any of the requirements for the Baccalaureate degree. A maximum of twelve credits may be taken for graduate credit by a student while enrolled as an undergraduate.

### Undergraduate Credit for Graduate Level Courses

Subject to requirements determined by the graduate faculty of the department or program offering the course, undergraduate degree-seeking students may register for graduate-level courses, i.e., those numbered from 600 to 898, with the exception of 799, for undergraduate credit. The student must obtain the prior approval of the department and instructor offering the course.

Students eligible for this option normally will have achieved Junior standing, will have a GPA of at least 3.0, and will have successfully completed the prerequisite courses with a grade of "B" or better.

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Enrollment in a graduate-level course does not in any way imply subsequent departmental or graduate school approval for admission into a graduate program, nor may the course be used as credit for a graduate degree at the University of Maryland.

### Combined Bachelor's/Master's Programs

In a combined bachelor's/master's program, some graduate level courses initially taken for undergraduate credit may also be applied towards the graduate credit requirements for a master's degree program at the University of Maryland. A bachelor's/master's program may be developed for an individual student, or it may be a structured program.

- A. **Individual Student Bachelor's/Master's Program:** A program may be developed by an individual student in consultation with his/her academic advisor. Such a program is available only to students whose academic performance is exceptional. It is to be developed according to the individual career interests and goals of the student and should be an integrated learning experience rather than merely the completion of a certain number of graduate and undergraduate credits. The program requires the approval of the directors of both the undergraduate and the graduate programs involved and of the Dean for Office of Undergraduate Studies and the Dean of the Graduate School. Normally no more than nine credits of graduate courses applied to the bachelor's degree may be counted also for graduate credit in an individual student program. Courses to be double-counted must be at the 600 level or above and must be passed with at least a "B" grade. Individual study courses, internships, or courses given credit by examination are not eligible. The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in the Graduate School. This designation will be canceled if the student withdraws from the graduate program before completing the master's degree.
- B. **Structured Bachelor's/Master's Program:** A structured bachelor's/master's program is an articulated curriculum combining an existing undergraduate program and an existing master's program at the University of Maryland, offered by the same or by different departments. Such a program is to be designed for students whose academic performance is exceptional and should be an integrated learning experience rather than merely the completion of a certain number of graduate and undergraduate credits. A proposal for such a program should be submitted by the college(s) housing the academic programs concerned and requires the approval of the Graduate Council, the Graduate Dean, the Senate PCC Committee, and the Provost.

Necessary features of a structured bachelor's/master's program include the following:

- There must be specific requirements for admission to the combined program that speak to the exceptional performance of the students to be admitted. At a minimum, students accepted for the program must be clearly admissible to the graduate program portion.
- The program should be designed so as not to unduly delay the students' receipt of their bachelor's degrees. Taking graduate credits should not unduly limit the breadth of the student's experience through premature specialization.
- All requirements of the bachelor's program and of the master's program must be completed to receive the two degrees. Where appropriate, graduate courses taken while an undergraduate may substitute for courses required in the undergraduate major program.
- The students may be offered deferred admission to the graduate school at the end of the Junior year program, subject to completion of the senior year program in a timely fashion and with a specified level of achievement. Formal admission to the graduate school will require completion of all requirements for the bachelor's degree.
- The credits to be double-counted will be designated as applicable to the graduate program after the student receives the bachelor's degree and matriculates in the Graduate School. This designation will be canceled if the student withdraws from the graduate program before completing the master's degree.

A structured bachelor's/master's program may normally include up to nine credits of graduate level courses (600 level and above) that are counted both for the bachelor's program and the master's program. More than nine double-counted credits may be allowed if both of the following conditions are satisfied.

- The additional graduate credits applied to the undergraduate program do not unduly limit the breadth of the student's experience through premature specialization. This condition may be satisfied, for example, if the graduate credits substitute for courses required in the undergraduate program that would have been taken in any case, but at a less advanced level.
- The master's program requires substantially more than thirty credits. This condition will be deemed to be satisfied if the combined program, with double-counting, still requires 150 or more credit hours to complete.

### Courses Taken at Other Institutions

Courses taken at another institution may not be credited toward a degree program without prior approval of the dean of the college from which the student expects to earn a degree. Eligible students may enroll in courses at other Universities via the University System of Maryland's Inter Institutional Registration Program or the Consortium of Universities of the Washington Metropolitan Area.

#### Consortium of Universities of the Washington Metropolitan Area:

The Consortium of Universities of the Washington Metropolitan Area consists of American University, The Catholic University of America, Gallaudet University, George Mason University, The George Washington University, Howard University, Joint Military Intelligence College, Marymount University, National Defense University, Southeastern University, Trinity University, University of the District of Columbia and the University of Maryland. Students enrolled in these institutions are able to attend certain classes at the other campuses and have the credit considered as resident credit at their home institutions. Comparable courses offered at University of Maryland may not be taken through the Consortium. The intention is to allow students to take an occasional course to augment a program rather than to develop an individual program. Payment of tuition for courses will be made to the student's home campus however special fees may be assessed by the host institution.

Currently registered, degree seeking University of Maryland students with at least junior standing may participate in the Consortium program according to the stipulations listed in the current edition of the Schedule of Classes. Enrollment in courses is available only on a space-available basis. Visiting students are expected to meet prerequisites or other criteria set by the host institution and comply with the host institution's registration procedures and deadlines.

Golden ID students are not eligible to enroll in courses through the Consortium with waiver of fees. University of Maryland students may only enroll in courses offered on the campus of the host institution. Students interested in additional information about the Consortium program should review the current edition of the Schedule of Classes or contact the Consortium Coordinator on the first floor of the Mitchell Building.

#### University System of Maryland Inter-Institutional Registration Program:

Undergraduate students have the opportunity to take courses at other University System of Maryland Institutions to augment their degree program at University of Maryland College Park under the Inter-Institutional Registration Program. Currently registered, degree seeking University of Maryland students with at least sophomore standing may enroll in courses and have that credit considered as resident credit at their home institution. Enrollment in courses is available only on a space available basis and visiting students are expected to meet prerequisites or other criteria set by the host institution. University of Maryland College Park students may not enroll in courses at the University of Maryland University College through this program. Payment of tuition for courses will be made to the student's home campus however special fees may be assessed by the host institution. Students interested in additional information about the Inter-Institutional Registration program should review the current edition of the schedule of classes or contact the Consortium Coordinator on the first floor of the Mitchell Building.

### Veterans Benefits

Students attending the university under the Veterans Education Assistance Act (Title 38, U.S. Code) may receive assistance and enrollment certification at the Veterans Certification Office, in the Office of the Registrar, first floor, Mitchell Building. Consult the Schedule of Classes for further information.

## Student ID Numbers

The University of Maryland assigns all students a unique nine-digit identification number called the U ID Number. This number is used as a student identifier for most university transactions. Students are also required to provide their Social Security Number, which is used for a limited number of purposes that are required by law or business necessity. A list of currently approved uses is provided in Chapter 10, Appendix M.

## Identification Card

The photo ID card is issued at the time the student first registers for classes. This card is to be used for the entire duration of enrollment. Additionally, students who have food service contracts will use this photo identification card. Contact Dining Services (information in chapter 3) directly for further information.

The photo identification card can be used by students to withdraw books from the libraries, for admission to most athletic, social, and cultural events, and as a general form of identification on campus.

There is a replacement charge of \$20 for lost photo identification cards. Questions concerning the identification card system should be addressed to the Office of the Registrar.

## Use of Email for Official Communication

The University has adopted email as the primary means for sending official communications to students. Academic advisors, faculty, and campus administrative offices use email to convey important information and time-sensitive notices. All enrolled students are provided a University email address. Students are responsible for keeping their email address up to date or for forwarding email to another address. Failure to check email, errors in forwarding email, and returned email due to "mailbox full" or "user unknown" will not excuse a student from missing announcements or deadlines.

## Change of Address

Students are expected to notify the Office of the Registrar of any change in their local, permanent or e-mail address. Use the internet to keep address information current and accurate. Change of address forms are available at the following places:

- Testudo web site: **www.testudo.umd.edu**, select Records and Registration
- Office of the Bursar, Room 1115 or 1135, Lee Building
- Student Services Counter, first floor, Mitchell Building

## ATTENDANCE AND ASSESSMENT/ EXAMINATIONS

### Attendance

1. The university expects each student to take full responsibility for his or her academic work and academic progress. The student, to progress satisfactorily, must meet all of the requirements of each course for which he or she is registered. Students are expected to attend classes regularly, for consistent attendance offers the most effective opportunity open to all students to gain command of the concepts and materials of their courses of study. Except as provided below, absences will not be used in the computation of grades, and the recording of student absences will not be required of the faculty.
2. It is the policy of the university to excuse the absences of students that result from the following causes: illness of the student, or illness of a dependent as defined by Board of Regents policy on family and medical leave; religious observance (where the nature of the observance prevents the student from being present during the class period); participation in university activities at the request of university authorities; and compelling circumstance beyond the student's control. Students claiming excused absence must apply in writing and furnish documentary support for their assertion that absence resulted from one of these causes.
3. In some courses, attendance and in-class participation are ongoing requirements and an integral part of the work of the course. In other courses, occasional in-class assessments may occur, sometimes

without advance notice. It is the responsibility of the instructor to inform each class at the beginning of the semester of the nature of in-class participation expected and the effect of absences on the evaluation of the student's work in the course.

4. Absences in courses where in-class participation is a significant part of the work of the course shall be handled by the instructor in the course in accordance with the general policy of his or her academic unit.
5. Permanent changes in the scheduling or location of classes must be approved by the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate.

### Assessment

1. The university provides students with excused absences the opportunity to reschedule significant assessments, except in cases where the nature of the assessment precluded the possibility of rescheduling, OR to perform a substitute assignment without penalty. An instructor is not under obligation to offer a substitute assignment or to give a student a make-up assessment unless the failure to perform was due to an excused absence, that is, due to illness (of the student or a dependent), religious observance (where the nature of the observance prevents the student from being present during the class period), participation in university activities at the request of university authorities, or compelling circumstances beyond the student's control. Students claiming excused absence must apply in writing and furnish documentary support for their assertion that absence resulted from one of these causes.

The make-up assessment or substitute assignment must be at a time and place mutually agreeable to the instructor and student, cover only the material for which the student was originally responsible, and be at a comparable level of difficulty with the original assessment. In the event that a group of students requires the same make-up assessment or substitute assignment, one time and place may be scheduled. The make-up assessment or substitute assignment must not interfere with the student's regularly scheduled classes or in-class final examination.

Students who have a concern regarding religious observances should see their instructors at the start of the semester. Although the university attempts to accommodate the religious beliefs of all of its members, it functions within a secular environment and is limited in the extent to which it can interrupt its normal operations. The president shall determine when it is appropriate for the campus community to restrict rescheduling examinations or other significant assessments on the dates of religious observance.

At this time, examinations or other significant assessments may not be scheduled on Rosh Hoshanah, Yom Kippur, Good Friday, or the first two days of Passover.

In cases of dispute, the student may appeal to the chair, the director or the dean of the department, non-departmentalized school or college offering the course within one week from the date of the refusal to schedule a make-up assessment. In those instances where the instructor is the chair, director or dean, the appeal shall be made to the next higher administrative officer, whose decision shall be final.

2. The student must notify his or her instructor of the reason for absence as soon as possible. Where the reason for absence from a scheduled assessment is known well in advance (for example, in cases of religious observance or participation in university activities at the request of university authorities), the student must inform the instructor by the end of the schedule adjustment period. Prior notification is especially important in connection with final examinations, since failure to reschedule a final examination before conclusion of the final examination period may result in loss of credits during the semester. Where the reason is not known well in advance (for example, in cases of illness or compelling circumstances beyond the student's control), the student must inform the instructor as soon as the reason develops, or as soon as possible after its development.
3. Ordinarily, assessments are given during class hours in accordance with the regularly scheduled (or officially "arranged") time and place of each course listed in the Schedule of Classes. No less than seven calendar days' notice shall be given for assessments scheduled at other times and places. It shall be the

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instructor's responsibility to ensure that the change in schedule does not interfere with any student's regularly scheduled classes or in-class final examinations. It is the responsibility of the student to be informed concerning the dates of announced quizzes, tests, and examinations. Performance assessments may take a variety of forms and need not be classroom-based written examinations.

4. A final examination shall be given in every undergraduate course. Exceptions may be made with the written approval of the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate. However, a student's final course grade shall be based on a combination of assessments that is at least the equivalent of a comprehensive final examination. No final examination or equivalent may be given or due during the last week of classes. All in-class final examinations must be held on the date and at the time listed in the official final examination schedule. Out-of-class final examination or equivalent assessments shall be due on the date and at a time listed in the official final examination schedule.
5. The chair, the director or the dean of the department, non-departmentalized school or college, as appropriate, is responsible for the adequate administration of assessments in courses under his or her jurisdiction.
6. No in-class assessment shall exceed the allotted time for a regularly scheduled class period. In the case of in-class final examinations, the time allotted shall not exceed the scheduled final examination period.
7. Each student shall be given the instructions and performance requirements for all assessments intended to require more than one-half class period in a form translatable to hard copy, unless the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate, has authorized another procedure. The instructions and requirements of the assessment shall be archived in an appropriate medium in a suitable place.
8. The following rules shall govern all in-class examinations, unless the instructor for a specific course stipulates alternate rules for that course. A breach of any of the rules shall constitute "disruption of class," a disciplinary offense (Code of Student Conduct, section 9.m.), or may serve as the basis of an allegation of academic dishonesty.
  - a. Students arriving late for an examination may not unreasonably disrupt the examination room.
  - b. Students must leave all unauthorized materials (e.g., books, notes, calculators) with the proctor before being seated.
  - c. Where seating arrangements are established by proctors, student must conform to these arrangements.
  - d. Students may not return to an examination room after leaving, unless permission to do so has been granted by the proctor prior to the student's departure.
  - e. Students must cease conversation prior to the passing out of examination papers and maintain silence during the entire examination period.
  - f. Students must place examination papers face down on the writing desk until the examination is officially begun by the proctor.
  - g. Students must keep examination papers flat on the writing desk at all times.
  - h. Students at an examination must be prepared to show current University identification.
9. Each faculty member is to retain, for one full semester after a course is ended, the students' final assessments in the appropriate medium. If a faculty member goes on leave for a semester or longer, or leaves the university, the final assessments and grade records for the course must be left with the chair, the director or the dean of the department, non-departmentalized school or college, as appropriate.

### Statement on Classroom Climate

The University of Maryland values the diversity of its student body and is committed to providing a classroom atmosphere that encourages the equitable participation of all students. Patterns of interaction in the classroom between the faculty member and students and among the students themselves may inadvertently communicate preconceptions about student abilities based on age, disability, ethnicity, gender, national origin, race, religion, or sexual orientation. These patterns are due in part to the differences the students themselves bring to the classroom. Classroom instructors should be particularly sensitive to being equitable in the opportunities they provide students to answer questions in class, to contribute their own ideas, and to participate fully in projects in and outside of the classroom.

Of equal importance to equity in the classroom is the need to attend to potential devaluation of students that can occur by reference to demeaning stereotypes of any group and/or overlooking the contributions of a particular group to the topic under discussion. Joking at the expense of any group creates an inhospitable environment and is inappropriate. Moreover, in providing evaluations of students, it is essential that instructors avoid distorting these evaluations with preconceived expectations about the intellectual capacities of any group.

It is the responsibility of individual faculty members to review their classroom behaviors, and those of any teaching assistants they supervise, to ensure that students are treated equitably and not discouraged or devalued based on their differences. Resources for self-evaluation and training for faculty members on classroom climate and interaction patterns are available from the Office of Human Relations.

## RECORDS

### Marking System

The Office of the Registrar, located on the first floor of the Mitchell Building, is responsible for maintaining student records and issuing official transcripts.

The following symbols are used on the student's permanent record for all courses in which he or she is enrolled after the initial registration and schedule adjustment period: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, XF, I, P, S, and W. These marks remain as part of the student's permanent record and may be changed only by the original instructor on certification, approved by the department chair and the dean, that an actual mistake was made in determining or recording the grade.

**A+, A, A—**denotes excellent mastery of the subject and outstanding scholarship. In computations of cumulative or semester averages, a mark of A+, A, A- will be assigned a value of 4 quality points per credit hour.

**B+, B, B—**denotes good mastery of the subject and good scholarship. A mark of B+, B, B- is assigned a value of 3 quality points per credit hour.

**C+, C, C—**denotes acceptable mastery of the subject. A mark of C+, C, C- is assigned a value of 2 quality points per credit hour.

**D+, D, D—**denotes borderline understanding of the subject. It denotes marginal performance, and it does not represent satisfactory progress toward a degree. A mark of D+, D, D- is assigned a value of 1 quality point per credit hour.

**F—**denotes failure to understand the subject and unsatisfactory performance. A mark of F is assigned a value of 0 quality points per credit hour.

**XF—**denotes failure due to academic dishonesty.

**S—**is a department option mark that may be used to denote satisfactory performance by a student in progressing thesis projects, orientation courses, practice teaching, and the like. In computation of cumulative averages a mark of S will not be included.

**W—**is used to indicate withdrawal from a course in which the student was enrolled at the end of the schedule adjustment period. For information and completeness, the mark of W is placed on the student's permanent record by the Office of the Registrar. The instructor will be notified that the student has withdrawn from the course. This mark is not used in any computation of quality points or cumulative average totals at the end of the semester.

**Audit**—A student may register to audit a course or courses which have been designated as available under the audit option and in which space is available. The notation AUD will be placed on the transcript for each course audited. A notation to the effect that this symbol does not imply attendance or any other effort in the course will be included on the transcript in the explanation of the grading system.

**Pass-Fail**—The mark of P is a student option mark, equivalent to A+, A, A-, B+, B, B-, C+, C, C-, D+, D or D-. The student must inform the Office of the Registrar of the selection of this option by the end of the schedule adjustment period.

The following **Pass-Fail** policy was approved by the Board of Regents for implementation beginning with the Spring 1989 semester:

1. To register for a course under the pass-fail option, an undergraduate must have completed 30 or more credit hours of college credit with a GPA of at least 2.0. At least 15 of these credit hours must have been completed at University of Maryland, College Park with a University of Maryland GPA of at least 2.0.
2. Courses for which this option applies must be electives in the student's program. The courses may not be college, major, field of concentration, or general education program requirements.
3. Only one course per semester may be registered for under the pass-fail option.
4. No more than 12 semester hours of credit may be taken under the pass-fail option during a student's college career.
5. Students may not choose this option when re-registering for a course.
6. When registering under the pass-fail option, a course that is **passed** will count as **hours** in the student's record but will not be computed in the grade point average. A course that is **failed** will appear on the student's record and will be computed both in the overall average and the semester average.
7. Students registering for a course under the pass-fail option are required to complete all regular course requirements. Their work will be evaluated by the instructor by the normal procedure for letter grades. The instructor will submit the normal grade. The grades A+, A, A-, B+, B, B-, C+, C, C-, D+, D or D- will automatically be converted by the Office of the Registrar to the grade P on the student's permanent record. The grade F will remain as given. The choice of grading option may be changed only during the schedule adjustment period for courses in which the student is currently registered.

**Incompletes.** The mark of "I" is an exceptional mark that is an instructor option. It is given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. **In no case will the mark "I" be recorded for a student who has not completed the major portion of the work of the course.**

1. This Incomplete Contract form must be submitted to the dean of the college offering the course within six weeks after the grade submission deadline (if a grade hasn't already been submitted.) If any Incomplete Contract isn't completed within the six week period, the instructor will convert the "I" to the appropriate grade.
2. The student will remove the "I" by completing work assigned by the instructor; it is the student's responsibility to request arrangements for the completion of the work. The work must be completed by the time stipulated in the contract, usually by the end of the next semester, but in any event, no later than one year. If the remaining work for the course as defined by the contract is not completed on schedule, the instructor will convert the "I" to the grade indicated by the contract.
3. Exceptions to the stated deadline may be granted by the student's dean (in negotiation with the faculty member or the faculty member's dean) upon the written request of the student if circumstances warrant further delay.
4. If the instructor is unavailable, the department chair, upon request of the student will make appropriate arrangements for the student to complete the course requirements.
5. It is the responsibility of the instructor or department chair concerned to submit the grade promptly upon completion of the conditions of the Incomplete Contract.

6. **The "I" cannot be removed through re-registration for the course or through "credit by examination."** An "I" mark is not used in the computation of quality points or cumulative grade point averages.

## Record Notations

In addition to the above marks, there are provisions for other record or transcript notations that may be used based on university policy and individual circumstances.

**Duplicate course:** Used to indicate two courses with the same course content. The second course is counted in the cumulative totals earned; both courses are counted in the cumulative attempted credit and in the calculation of grade point average.

**Non-applicable (Non-Appl):** In all cases of transfer from one college to another at the University of Maryland, College Park, the dean of the receiving college, with the approval of the student, shall indicate which courses, if any, in the student's previous academic program are not applicable to his or her new program, and shall notify the Office of the Registrar of the adjustments that are to be made in determining the student's progress toward a degree. Deletions may occur both in credits attempted and correspondingly in credits earned. This evaluation shall be made upon the student's initial entry into a new program, not thereafter. If a student transfers from one program to another, his or her record evaluation shall be made by the dean in the same way as if he or she were transferring colleges. If the student subsequently transfers to a third college, the dean of the third college shall make a similar initial adjustment; courses marked "nonapplicable" by the second dean may become applicable in the third program.

**Excluded Credit (Excl Crd):** Excluded credit is noted when Academic Clemency has been granted.

## Campus Repeat Policy

The following policies apply to ALL courses that may not be repeated for additional credit.

1. The following students are required to follow the new repeat policy:
  - a. All new freshmen who began at University of Maryland, College Park Fall 1990 and after.
  - b. Transfer students from schools other than Maryland community colleges who began at University of Maryland, College Park, Fall 1990 and after. This includes transfer students from another University of Maryland institution.
2. There is a limit to the number of times a student may repeat a course. Students may have one repeat of any course in which they earned an A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, P, S, W, NGR or Audit; they cannot be registered (after the schedule adjustment period) for any given course more than twice. A student's dean's office may grant an exception allowing an additional course repeat. In this case, students must present a plan for successfully completing the course. All attempts will be counted toward the total limit for repeatable credits.
 

**Note: Students may not choose the Pass-Fail option when re-registering for a course or re-register for a course in which a grade of "I" has been noted.**
3. Students may repeat no more than 18 credits. Additionally, if a student withdraws from all courses during a semester, those courses are not included in this limit.
4. The grade point average will include all attempts at a given course that result in a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, or F. However, to help **freshmen and transfer students** adjust to the University of Maryland, College Park, the following two exceptions allow for the cumulative GPA to be calculated so that only the higher grade is included:
  - a. When the repeated course was taken within the student's first semester at University of Maryland, College Park, or
  - b. When the repeated course was taken within the student's first 24 credit hours attempted (including transfer credits) or *within the semester* during which the student reached the 24th credit hour attempted.
5. Any grade earned in prior attempts of a repeated course will appear on the student's transcript, regardless of whether the grade is dropped from, or included in, the cumulative grade point average.



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6. Repeat by transfer—If a student repeats by transfer a course that was taken before or during the semester in which the student reached 24 credits attempted (including transfer credits) and the transfer grade is higher, then the original grade in the course will be excluded from the GPA calculation.
  - a. If the course was taken after the semester in which the student reached 24 credits attempted, the original grade remains in the GPA calculation.

### Repeat Policy Prior to Fall 1990:

The following students follow the previous repeat policy:

- Students who began at University of Maryland, College Park, before the Fall 1990 semester (including students who enter University of Maryland, College Park for summer 1990).
- Transfer students who began at a Maryland community college before Fall 1990.
- UMBC College of Engineering students who began before 1990.

The highest grade received in the repeated course is used to calculate the GPA. A student may repeat any course; however no student may be registered for a course more than three times.

If a student repeats a course in which he or she has already earned a mark of A, B, C, D, P, or S, the subsequent attempt shall not increase the total hours earned toward the degree. Only the highest mark will be used in computation of the student's cumulative average. Under unusual circumstances, the student's dean may grant an exception to this policy.

### Academic Clemency Policy

Undergraduate students returning to the University of Maryland, College Park in pursuit of their initial baccalaureate degree, after a separation of five calendar years may petition the appropriate dean to have a number of previously earned grades and credits removed from the calculation of their cumulative grade point average. Up to 16 credits and corresponding grades from courses previously completed at the University of Maryland, College Park, will be removed from calculation of the grade point average and will not be counted toward graduation requirements. The petition for clemency must be filed in the first semester of return to the institution. Approval is neither automatic or guaranteed.

### Proficiency Examination Programs

The University of Maryland, College Park offers new, continuing, and returning students several opportunities to earn college credit by demonstrating achievement in a subject field through examination. College Park recognizes three proficiency examination programs for credit: Advanced Placement (AP), Departmental Proficiency Examination Program (Credit-by-Examination), and College-Level Examination Program (CLEP). Undergraduate students may earn a total of up to one-half of the credits required for their degree through examination. Usually, this is no more than 60 credits. Students are responsible for consulting with the appropriate dean or advisor about the applicability of any credits earned by examination to a specific degree program. Students should also seek assistance in determining which University of Maryland, College Park courses duplicate credits earned for an examination. **Students will not receive credit for both passing an examination and completing an equivalent course.**

**Advanced Placement (AP) Credit.** For complete information about the applicability of AP exams and the assignment of credit, please see chapter 1.

#### Departmental Proficiency Examination (Credit-by-Examination)\*

College Park Departmental Proficiency Examinations, customarily referred to as "credit-by-examination," are comparable to comprehensive final examinations in a course. Although the mathematics and foreign-language departments receive the most applications for credit by examination, many departments will provide examinations for certain of their courses. Initial inquiry as to whether an examination in a specific course is available is best made at the academic department which offers the course in question.

If an examination for a course is available, the department will provide information regarding time and place, type of examination, and material which might be helpful in preparing for the examination. An undergraduate who passes a departmental proficiency examination is given credit and quality points toward graduation in the amount regularly allowed in the course, provided such credits do not duplicate credit obtained by some other means.

After making arrangements with the department, apply through the Division of Letters and Sciences, 1117 Hornbake Library, 301-405-2793.

#### Policies governing credit by examination:

1. The applicant must be formally admitted to the University of Maryland, College Park. Posting of credit earned, however, will be delayed until the student is registered.
2. Departmental Proficiency Examinations may not be taken for courses in which the student has remained registered at the University of Maryland, College Park, beyond the Schedule Adjustment Period even with a transcript notation of "W."
3. Departmental Proficiency Examinations may not be used to change grades, including Incompletes and Withdrawals.
4. Application for credit-by-examination is equivalent to registration for the course; however, the following conditions apply:
  - a. A student may cancel the application at any time prior to completion of the examination with no entry on his/her permanent record. (Equivalent to the schedule adjustment period.)
  - b. The instructor makes the results of the examination available to the student prior to formal submission of the grade. Before final submission of the grade, the student may elect not to have this grade recorded. In this case, a mark of W is recorded. (Equivalent to the drop period.)
  - c. No examination may be attempted more than twice.
  - d. The instructor must certify on the report of the examination submitted to the Office of the Registrar that copies of the examination questions (or identifying information in the case of standardized examinations), and the student's answers have been filed with the chair of the department offering the course.
5. If accepted by the student (see 4.b, above), letter grades earned through credit-by-examination are entered on the student's transcript, and are used in computing his/her cumulative grade point average. A student may elect to take a "credit-by-examination" "Pass-Fail" only if the credit fulfills an elective in the student's degree program. **No college, major, field of concentration, or general education program requirement may be taken under the pass-fail option.** Please refer to the Pass-Fail policy under the "Records" section in this chapter.

#### College-Level Examination Program (CLEP)

The College-Level Examination Program (CLEP) recognizes college-level competence achieved outside the college classroom. Two types of CLEP tests are available: General Examinations, which cover the content of a broad field of study; and Subject Examinations, which cover the specific content of a college course. Credit can be earned and will be recognized by College Park for some CLEP General or Subject Examinations, provided satisfactory scores are attained. Credits earned under CLEP are not considered "residence" credit, but are treated as transfer credit.

CLEP exams are administered at CLEP testing centers throughout the country. The University of Maryland, College Park is a CLEP Test Center (Test Center Code: 5814). To obtain an application or additional information, contact the CLEP Administrator in the Counseling Center, Room 0106A Shoemaker Hall, (301-314-7688), or write to CLEP, CN 6600, Princeton, NJ, 08541-6600.

Students who want to earn credit through CLEP must request their official score reports to be sent to the Office of Undergraduate Admission, Mitchell Building, University of Maryland, College Park, MD 20742-5235. (The University of Maryland, College Park, Score Recipient Code is 5814.)

#### Policies governing CLEP are as follows:

1. A student must matriculate at the university before CLEP credits are officially posted. The posting will not be done until a student has established a record.
2. Each institution of the University System of Maryland establishes standards for acceptance of CLEP exemptions and credits. Students must check with the institution to which they will transfer to learn if they will lose, maintain, or gain credit.
3. College Park will award credit for a CLEP examination
  - (a) provided the examination was being accepted for credit here on the date the student took the examination, and
  - (b) provided that the examination was not taken during a student's final 30 credits. The final 30 hours of credit are to be taken in residence, unless prior approval has been granted by the student's dean.
4. **Credit will not be given for both completing a course and passing an examination covering substantially the same material.**
5. Furthermore, credit will not be awarded for CLEP examinations if the student has previously completed more advanced courses in the same field.

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6. CLEP examinations posted on transcripts from other institutions will be accepted if the examination has been approved by College Park and the scores reported are equal to or higher than those required by this institution. If the transcript from the prior institution does not carry the scores, it will be the responsibility of the student to request Educational Testing Service to forward a copy of the official report to the Office of Admissions.

The university awards credits for CLEP Examinations only as indicated on the chart provided in this chapter (if an examination is not listed, it is not accepted for credit at this institution).

If you have questions about the applicability of specific credit to your program, consult the list provided in this catalog or contact your Dean's Office.

### College Level Examination Program (CLEP)

| Exam Title   | Score          | Related Course                      | Cr          | Maj             | Core            | Notes   |
|--|----------------|-------------------------------------|-------------|-----------------|-----------------|---|
| <b>General Exams</b>                               |                |                                     |             |                 |                 |   |
| <b>Natural Science</b>                             | 50             | LL Elective                         | 3           | No              | No              |   |
| <b>Humanities</b>                                  | 50             | LL Elective                         | 3           | No              | No              |   |
| <b>Social Science &amp; History</b>                | 50             | LL Elective                         | 3           | No              | No              |   |
| <b>Subject Exams</b>                               |                |                                     |             |                 |                 |   |
| <b>Biology</b><br>Gen. Biology                     | 49             | LL Elective                         | 3           | No              | No              | Students who receive CLEP credit in Biology and wish to take additional BIOL credit should enroll in BIOL 105.  |
| <b>Chemistry</b><br>Gen. Chemistry                 | 50             | LL Elective                         | 3           | No              | No              | Students who receive CLEP credit in Chemistry and wish to take additional CHEM credit should enroll in CHEM 131 AND 132.  |
| <b>Economics</b><br>Prin. Macro.<br>Prin. Micro.   | 57<br>54       | ECON 201<br>ECON 200                | 3<br>3      | Yes<br>Yes      | Yes<br>Yes      | ECON credits fulfill one of two CORE-Social/Behavioral Science requirements. Contact department for placement, 405-3266.  |
| <b>Government</b><br>American Govt.                | 52             | GVPT 170                            | 3           | Yes             | Yes             | GVPT 170 fulfills one of two CORE-Social/Behavioral Science requirements. Students should contact the department for gateway applicability, 405-4136.                                       |
| <b>Mathematics</b><br>Calculus/ Elem.<br>Functions | 67<br>58<br>50 | MATH 140<br>MATH 220<br>LL Elective | 4<br>3<br>3 | Yes<br>No<br>No | Yes<br>Yes<br>* | MATH 140 or 220 fulfills CORE-Math & Formal Reasoning non-lab requirement; also fulfills CORE-Fundamental Studies Math requirement.<br>*Fulfills CORE-Fundamental Studies Math requirement. |
| <b>Sociology</b><br>Intro. Sociology               | 50             | LL Elective                         | 3           | No              | No              | Sociology majors who receive credit for this exam will be exempt from SOCY 100. Other students who wish to fulfill a CORE requirement are encouraged to enroll in SOCY 105.                 |

**Please Note:** LL refers to courses at the lower (100 and 200) level. Any test not listed will not be accepted for credit at UMCP. Students may not receive credit both for CLEP courses and for equivalent UMCP courses or transfer courses (including Advanced Placement or International Baccalaureate). CLEP credit will be deleted in such cases. Applicable scores for a particular exam are those in effect when a student takes the exam. Contact your College Dean if you have questions.

Certain CLEP tests may be revised during 2006-07. At the time this catalog was printed, information on the new versions of those tests was not available. Changes are possible in UMCP credit acceptance for revised CLEP exams. Contact the Testing Office for up-to-date information, 314-7688.

Computer-based CLEP testing was implemented during 2003 for selected tests at selected test venues. Scoring procedures are changing. The scores above apply to NON-computer based testing. Departments will evaluate the new tests and scoring procedures as they become available. Some exams will be considered for credit on a case-by-case basis until review is complete. Contact an advisor or the Transfer Credit Center (tccinfo@umd.edu) for further information. Students who have matriculated at UMCP are encouraged to speak to their advisor about departmental or Advanced Placement exams in addition to CLEP. All matriculated students must have permission of their college advisor to take CLEP tests. Students interested in taking MATH CLEP are encouraged to speak to the math advisor on campus, 405-4362.

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### TRANSFER CREDIT

(For current University of Maryland, College Park students)

The Office of the Registrar posts all transfer credit that would be acceptable to any of the degree programs at the University of Maryland, College Park. The dean of the college in which the student is enrolled determines which transfer credits are applicable to the student's degree program. In general, credit from academic courses taken at institutions of higher education accredited by a regional accrediting association will transfer, provided that the course is completed with at least a grade of C and the course is similar in content and level to work offered at College Park. The title of courses accepted for transfer credit will be noted on the student's record; however, the grade will not. Grades from transferred courses are not included in the University of Maryland, College Park, grade point average calculation. See chapter 1 for additional information.

#### Courses taken at other institutions while attending the University of Maryland, College Park

- 1. Courses taken at another institution** may not be credited toward a degree without approval in advance by the dean of the college from which the student expects a degree. The same rule applies to registration in the summer program of another institution. "Permission to Enroll in Another Institution" forms are available in the office of the student's dean. This form must be submitted and approved by the college for any course which will eventually be added to the university transcript.
- 2. Courses taken at other University of Maryland Institutions**  
For students who began their attendance at the University of Maryland, College Park in Fall 1989 or later, all course work taken at any University System of Maryland institution will be posted as transfer credit. For all students who attended Maryland prior to Fall 1989, courses taken at another University of Maryland Board of Regents institution (UMBC, UMAB, UMES, UMUC) prior to Fall 1989 will be included in the cumulative GPA. Courses taken at any other institution may not be credited toward a degree without advance approval. See #1 above for information.
- 3. USM Concurrent Inter-Institutional Registration Program**  
University undergraduate students participating in the Concurrent Inter-Institutional Registration Program should obtain permission from their dean. Course work counts as resident credit. Students participating in this program must be enrolled full time in a degree program at University of Maryland, College Park, for the semester in which these courses are taken.
- 4. Consortium of Universities of the Washington Metropolitan Area**  
Courses taken through the Consortium are considered to be resident credit. See above under "Consortium" and see the Schedule of Classes for information.

#### Transfer Credit Center

The Transfer Credit Center provides articulation information and assistance to students and transfer advisors. More information is available in the section on Transfer Admission in chapter 1 and on the internet at [www.tce.umd.edu](http://www.tce.umd.edu).

### COMPUTATION OF GRADE POINT AVERAGE (GPA)

GPA is computed by dividing the total number of quality points accumulated in courses for which a grade of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, or F has been assigned by the total number of credits attempted in those courses. Courses for which a mark of P, S, I, NGR or W has been assigned are not included in computing the GPA. Each letter grade has a numerical value: A+, A, A- = 4; B+, B, B- = 3; C+, C, C- = 2; D+, D, D- = 1; F = 0. Multiplying this value by the number of credits for a particular course gives the number of quality points earned for that course.

See **Repeat Policy** to determine the effect of repeated courses in the calculation of GPA.

### SEMESTER ACADEMIC HONORS

Semester Academic Honors (Dean's List) will be awarded to those students who complete, within any given semester (excluding winter and summer terms), 12 or more credits (excluding courses with grades of P and S) with a semester GPA of 3.5 or higher. This recognition will be noted on the student's academic record.

### UNDERGRADUATE POLICY ON ACADEMIC PROBATION AND DISMISSAL

Consistent with the University of Maryland Student Academic Success - Degree Completion Policy, it is the intent of the University that its students make satisfactory progress toward their degree objectives, and achieve academic success. If a student has special circumstances that make it impossible to complete a normal course load, the student must meet with an advisor to discuss the circumstances, the student's plans for continued progress toward a degree, and the implications for continued enrollment.

The following guidelines for retention of students refer separately to semester (Fall and Spring) and Winter or Summer terms:

- Academic retention is based solely on grade point average (GPA). A **minimum** of 120 successfully completed course credits is required for graduation in any degree curriculum. Individual colleges, schools, and departments may establish higher requirements for graduation. Students must consult the appropriate college, school, or department for specific information.
- Satisfactory Performance is defined as the achievement of a cumulative GPA of 2.0 or above. Students whose semester GPA falls below 2.0 are encouraged to meet with their advisors regarding the development of a plan that will appropriately respond to the student's academic difficulties and lead to academic improvement. Individual colleges, schools and departments may establish separate requirements for mandatory advising. Students must consult the appropriate college, school, or department for specific information.
- Unsatisfactory Performance is defined as the achievement of a cumulative GPA of less than 2.0. Students will be placed on Academic Probation following any semester in which a 2.0 cumulative GPA is not achieved. Normally, students will be Academically Dismissed if they are unable to raise their cumulative GPA to 2.0 or higher at the end of their probationary semester.

#### Academic Probation:

Students will be placed on academic probation if their cumulative GPA falls below 2.0. Normally, a student is expected to attain a 2.0 cumulative GPA at the end of any probationary semester. Students who fail to achieve a 2.0 cumulative GPA at the end of their probationary semester may be academically dismissed, depending on their credit level as detailed below.

- Students who have earned 60 credits or more will be dismissed from the University in the event their cumulative GPA remains below 2.0 at the end of their probationary semester. Students who are on probation and attain a cumulative GPA of 2.0 at the end of a winter or summer term will not be subject to dismissal in the subsequent semester.
- Students who are on academic probation and have earned fewer than 60 credits will be permitted to continue on academic probation if a minimum semester GPA of 2.0 is achieved in each semester of probation.
  - Full-time students must complete 9 or more credits in each semester of probation. A completed credit is defined as credit for any course in which a student receives a grade of A, B, C, D, F, P, or S.
  - Students who meet this requirement will be permitted to continue on probation until the close of the semester (excluding winter and summer terms) in which they attain a cumulative GPA of 2.0.
  - However, students who are on probation will be dismissed if they have not achieved a cumulative GPA of 2.0 at the end of the semester in which they complete 60 credits.
  - Students who are on probation and attain a cumulative GPA of 2.0 at the end of a winter or summer term will not be subject to dismissal in the subsequent semester.
- The Office of the Registrar will notify students when they are placed on academic probation. Such notices will include a requirement that the students consult an academic advisor in their colleges early in the probationary semester and in no event later than the beginning of the early registration period for the next semester. The Office of the Registrar will notify the colleges of students who are placed on academic probation and will note the academic probationary status on the students' academic record.
  - The academic advisors will assist students in developing appropriate plans for achieving satisfactory academic performance.

- b. Students who are placed on probation will not be allowed to add or drop courses, or register without the approval of an academic advisor in their college.

#### Academic Dismissal:

1. Students who have earned 60 or more credits will be dismissed if their cumulative GPA remains below 2.0 for two consecutive semesters (excluding winter and summer terms). Students who attain a cumulative GPA of 2.0 in the preceding winter or summer term will not be subject to dismissal.
2. Students who have earned fewer than 60 credits will be dismissed following any probationary semester in which they fail to attain a minimum 2.0 semester GPA and complete the requisite credits detailed under 'Academic Probation.' Students who attain a cumulative GPA of 2.0 in the preceding winter or summer term will not be subject to dismissal.
3. Students who have been academically dismissed and who are reinstated will be academically dismissed again if a cumulative GPA of at least 2.0 is not achieved by the end of the first semester after reinstatement. Reinstated students will not be allowed to add or drop courses, or to register during any semester without the approval of an academic advisor in their college, unless a cumulative GPA of at least 2.0 is achieved.
4. The Office of the Registrar will notify the appropriate University offices when students are academically dismissed and will note the dismissal on the students' academic record.
5. The Office of Undergraduate Admissions will notify students in writing when they are dismissed. The notices will include a statement that registration for the next semester (excluding winter or summer terms) will be canceled.
6. Normally, a student dismissed for academic reasons must wait out one semester (fall or spring) before reinstatement. Exceptions will be determined by the Faculty Petition Board.

#### Application for Academic Reinstatement.

1. Students who have been dismissed may apply to the Faculty Petition Board for reinstatement on the grounds of mitigating circumstances, such as (i) demonstrated progress toward a degree by successful completion of 24 degree-applicable credits in the preceding year, (ii) continuing improvement in the cumulative grade point average, and (iii) progress in general education and major requirements.
2. The application for reinstatement must include a written statement explaining the circumstances leading to dismissal and a proposed plan to remedy those circumstances. Students are encouraged to consult with their academic advisors prior to submitting their applications to the Faculty Petition Board.
3. Applications for reinstatement can be obtained from the Reenrollment Office in the Office of Undergraduate Admissions, which is responsible for administering the reinstatement process in coordination with the Faculty Petition Board.

#### Faculty Petition Board.

1. The Reenrollment Office is responsible for submitting the reinstatement applications for review and decision by the Faculty Petition Board, which is comprised of tenured faculty appointed by the Senior Vice President for Academic Affairs and Provost. The Board is the sole arbiter of reinstatement applications.
2. The Faculty Petition Board has the discretion to establish the terms for reinstatement, including the requirements for achieving academic improvement and developing an academic plan for success.
3. The Reenrollment Office will forward the Board's decision to students at their permanent addresses.

#### Dismissal of Delinquent Students.

The university reserves the right to request at any time the withdrawal of a student who cannot or does not maintain the required standard of scholarship, or whose continuance in the university would be detrimental to his or her health, or the health of others, or whose conduct is not satisfactory to the authorities of the university. Additional information about the dismissal of delinquent students may be found in the Code of Student Conduct, Appendix C, in Chapter 10.

## GRADUATION AND DEGREE REQUIREMENTS

The University of Maryland, College Park, awards the following degrees: Bachelor of Arts, Bachelor of Landscape Architecture, Bachelor of Music, Bachelor of Science, Master of Applied Anthropology, Master of Architecture, Master of Arts, Master of Business Administration, Master of Community Planning, Master of Education, Master of Engineering, Master of Fine Arts, Master of Historic Preservation, Master of Information Management, Master of Journalism, Master of Library Science, Master of Chemical and Life Sciences, Master of Music, Master of Public Health, Master of Public Management, Master of Public Policy, Master of Science, Doctor of Audiology, Doctor of Education, Doctor of Musical Arts, Doctor of Philosophy, and Doctor of Veterinary Medicine. Students in specified two-year curricula may be awarded certificates.

### Graduation Applications

Each candidate for a degree or certificate must file a formal application with the Office of the Registrar. The deadline for application is the end of the schedule adjustment period for the semester in which the student plans to graduate, or at the end of the first week of the second summer session for August degrees.

In all cases, graduation applications must be filed at the beginning of the student's final semester before receiving a degree. The graduation applications are available on the internet at [www.testudo.umd.edu](http://www.testudo.umd.edu) or at the Registrar's Office, 1st floor Mitchell Building.

### Degree Requirements

The requirements for graduation vary according to the character of work in the different colleges, schools, departments and academic units. It is the responsibility of the colleges, schools, departments and other academic units to establish and publish clearly defined degree requirements. Responsibility for knowing and meeting all degree requirements for graduation in any curriculum rests with the student. Specific degree requirements are listed in this catalog under the college and/or department as appropriate.

Each student should check with the proper academic authorities no later than the close of the junior year to ascertain his or her standing with respect to advancement toward a degree. For this purpose, each student should be sure to review their semester grades and unofficial transcript on the Testudo Interactive Student Website ([www.testudo.umd.edu](http://www.testudo.umd.edu)) at the close of each semester or request a semester grade report.

#### 1) Residency requirement—Final 30-Hour Rule

- a. All candidates for University of Maryland, College Park, degrees should plan to take their final 30 credits in residence since the advanced work of their major study normally occurs in the last year of the undergraduate program. Included in these 30 semester hours will be a minimum of 15 semester hours in courses numbered 300 or above, including at least 12 semester hours required in the major field (in curricula requiring such concentrations).
- b. A student who at the time of graduation will have completed 30 credit hours in residence at the University of Maryland, College Park, may, under unusual circumstances, be permitted to take a maximum of 8 of the final 30 credits of record, comprising no more than two courses, at another institution. A student who has completed 75 credit hours in residence at the University, may, under unusual circumstances, be permitted to take a maximum of 16 of the final 30 credits of record, comprising no more than 4 courses, at another institution. In such cases, written permission must be obtained in advance from the dean and chair/director of the academic unit from which the student expects to graduate. Any course taken at another institution and intended to satisfy a specific major requirement at the University of Maryland must be approved as an equivalent course by the chair/director and the dean. Normally, no more than two courses required by the major, including major and supporting courses, will be approved. Exceptions beyond the articulated maximum credits and/or courses will be made only under highly unusual circumstances; requests for an exception must be made through the Dean's office to the Office of the Senior Vice President for Academic Affairs.
- c. For students in the combined three-year, preprofessional programs, the final 30 hours of the 90-hour program at the University of Maryland, College Park, must be taken in residence.

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**2) Enrollment in Majors.** A student must be enrolled in the major program from which he or she plans to graduate, when registering for the final 15 hours of the baccalaureate program. This requirement also applies to the third year of the combined, preprofessional degree programs.

**3) Credit Requirements.** While several undergraduate curricula require more than 120 credits, no baccalaureate curriculum requires fewer than 120. No baccalaureate will be awarded in instances in which fewer than 120 credit hours have been earned.

It is the responsibility of each student to familiarize himself or herself with the requirements of specific curricula. The student is urged to seek advice on these matters from the departments, colleges, or the Office of the Dean for Office of Undergraduate Studies.

To earn a baccalaureate from the University of Maryland, College Park, a minimum of 30 credits must be taken in residence.

**4) Grade Point Average.** A minimum cumulative 2.0 grade point average is required for graduation in all curricula.

### MINORS

Minors afford students the opportunity to pursue a limited but structured concentration in a coherent field of study outside their major. The minor may be a truncated version of a major or a distinctive intellectual subset of a discipline. Minors are not offered in every field of study. Students should inquire with departments for current availability of minors or visit: [www.provost.umd.edu](http://www.provost.umd.edu).

The structures of minors vary in detail, but, with rare exceptions, they all require no fewer than 15 and no more than 24 credits with at least 9 credits in upper division courses (300 level or above). No more than six credits (or two courses) may be applied to satisfy both the requirements of a minor and a major program. No course may be used to satisfy the requirements of more than one minor. All courses taken for a minor must be completed with a minimum grade of C.

To insure appropriate academic advising, students who wish to pursue a minor should inform both the college responsible for their major and the unit offering the minor as early as possible, but in no case later than one full academic year before the expected date of graduation. When a student has completed all requirements for the minor, the unit offering the minor shall notify the student's college, which verifies that the student has met all requirements and officially notifies the Registrar's Office. The completion of a minor is posted on the student's official transcript only when the student completes all requirements for the bachelor's degree.

*In February 2004, the University Senate voted to phase out academic citations and replace them with minors. Students pursuing an academic citation should contact the respective department or program for information on this conversion process.*

### SECOND MAJORS AND SECOND DEGREES

#### Second majors

A student who wishes to complete a second major concurrently with his or her primary major of record must obtain written permission in advance from the appropriate departments or programs and colleges. As early as possible, but in no case later than one full academic year before the expected date of graduation, the student must file with the department or programs involved and with the appropriate deans, formal programs showing the courses to be offered to meet requirements in each of the majors and supporting areas as well as those of the college and general education programs. A student who wishes to add a Limited Enrollment Program as a second major must do so at the earliest possible opportunity to assure that specific credit and GPA requirements can be met. In order to obtain approval, students must complete all of the requirements specified for both the primary and secondary major. Courses taken for one major may be counted as appropriate as part of the degree requirements for the general education programs. If two colleges are involved in the double major program, the student must designate which college will be responsible for the maintenance of records and certification of general education requirements. Final approval of a double major program must be obtained from each of the appropriate departments and college(s).

#### Second Degrees Taken Simultaneously

A student who wishes to receive two bachelor's degrees simultaneously must satisfactorily complete the regularly prescribed requirements of both degree programs and a minimum of 150 credits (180 credits if one of the degrees is in Special Education). At least 18 of the credits applied to one degree must be in course work not applied to the requirements of the other degree program. As early as possible, but in no case later than one full academic year before the expected date of graduation, the student must file with the department or programs involved, as well as with the appropriate deans, formal programs showing the courses to be offered to meet the major, supporting area, college, and general education programs. If two colleges are involved in the double degree program, the student must designate which college will be responsible for the maintenance of records and certification of general education requirements. Final approval of a double degree program must be obtained from each of the appropriate departments and college(s).

#### Second Degrees Taken Sequentially

A student who has completed the requirements for, and has received one baccalaureate and who wishes to earn a second degree from the university must satisfactorily complete all of the prescribed requirements for the second degree and enough additional credits so that the total, including all applicable credits earned at the university or elsewhere, is at least 150 credits (180 credits if one of the degrees is in Special Education). At least 18 of the credits applied to one degree must be in course work not applied to the requirements of the other degree program. In no case will a second baccalaureate be awarded to a student who has not completed a minimum of 30 credits in residence at the university.

#### Post-Baccalaureate Second Degree

A student who has completed a bachelor's degree at another accredited or recognized college or university and wishes to earn a second degree, must satisfy all current degree requirements, including General Education requirements. A course by course evaluation of the student's prior collegiate work will be undertaken to determine which requirements have been satisfied by prior coursework. In no case, will a second baccalaureate be awarded to a student who has not completed a minimum of 30 credits in residence at the university.

### COMMENCEMENT HONORS

Summa cum laude, magna cum laude and cum laude are the highest commencement honors that the University bestows for sustained excellence in scholarship. They are awarded to the top 10% of all students graduating in each college over the course of a year. Summa cum laude is awarded to students with a GPA equal to the highest two percent of all college graduates over the past three terms, magna cum laude to the next highest three percent, and cum laude to the following five percent. To be eligible for this recognition, at least 60 semester hours must be earned at the university or at a program in which credit earned is counted as University of Maryland, College Park, resident credit (contact the Office of the Registrar to determine program eligibility). No more than 6 credits taken pass/fail or satisfactory/fail shall count toward the 60-hour minimum. No student with a grade-point average of less than 3.3 will be considered for a commencement honor. Because grades for a term generally are officially recorded after the term's graduation day, computation of the student's GPA will not include grades for courses taken during the student's final semester at the university. However, the hours taken during that semester will apply toward the 60-hour requirement.

#### Election to Phi Beta Kappa

Organized in 1776, Phi Beta Kappa is the oldest and most widely respected academic honorary society in the United States. Invitation to membership is based on outstanding scholastic achievement in studies of the liberal arts and sciences. Student members are chosen entirely on the basis of academic excellence; neither extracurricular leadership nor service to the community is considered. Election is held twice a year, once in the fall and once in the spring semester.

The process for election to Phi Beta Kappa involves a review in November for those who graduated the previous August or those who will graduate in December, and a review in March for those graduating in May. A number of qualifying juniors are also considered during the same semester. The review is conducted by a select committee of faculty members representing the humanities, social sciences, and natural sciences. The committee reviews transcripts of all juniors and seniors with qualifying grade point averages. Whether a student qualifies for membership in Phi Beta Kappa depends on the quality, depth, and breadth of the student's record in liberal education courses. The final decision for election rests with the resident faculty members of Phi Beta Kappa. There is no application procedure for election to Phi Beta Kappa (see #4 below for possible exception).

Requirements for selection to membership in Phi Beta Kappa at the University of Maryland, College Park, campus chapter include:

1. **Grade Point Average:** For seniors a grade point average of at least 3.5 overall as well as in all liberal arts and sciences courses taken. For juniors the minimum grade point average is 3.75, and possibly higher depending on the number of candidates in a particular year.
2. **Residence:** At least 60 credit hours must be taken at the University of Maryland, College Park.
3. **Liberal Courses:** For seniors, at least 90 credit hours in courses in the liberal arts and sciences (where "liberal" courses are to be distinguished from professional or technical courses), at least 45 of which must be taken at the University of Maryland, College Park. For juniors, at least 75 total credit hours must be completed, at least 60 of which are in courses in the liberal arts and sciences; of these, at least 45 must be taken at the University of Maryland, College Park. Students would ordinarily be majors in one of the programs in the liberal arts and sciences. However, students with the requisite number of liberal credit hours can be admitted if they have completed at least 5 courses (15 credit hours or more) for seniors or three courses (9 credit hours or more) for juniors in a single liberal arts and sciences department/program at UMCP.
4. **Required courses:** One semester of mathematics, which must be fulfilled by college-level credit hours (including AP credit), and two college semesters of a foreign language at the elementary level, or above. The language requirement may also be satisfied by completion of four years of one language other than English at the high-school level or above, or the equivalent. Students with such a foreign language background who wish to be considered for admission to Phi Beta Kappa should notify the Phi Beta Kappa office in writing and provide the appropriate documentation (such as a high school transcript) prior to the month of consideration. Credit is not allowed based on SAT scores.
5. **Distribution:** The credit hours presented for Phi Beta Kappa must contain at least three liberal arts and sciences courses (9 credit hours or more) in each of the three following areas: a) arts and humanities, b) behavioral and social sciences, c) natural sciences and mathematics (including a laboratory science course; this requirement cannot be fulfilled by AP credit). All the courses in at least two of the three required areas must be completed at UMCP and in the remaining area no more than one AP course can be used to fulfill the requirement. In general Phi Beta Kappa will accept the CORE classification of courses but courses which CORE designates as having more than one classification may not satisfy any Phi Beta Kappa distribution requirement. Students with more challenging courses and moderately high grade point averages are preferred by the committee to those with higher grade point averages but a narrow range of courses. Minimal qualifications in more than one area may preclude election to Phi Beta Kappa.

#### Recommended criteria include:

Meeting the above requirements does not guarantee election to Phi Beta Kappa. The judgment of the resident faculty members of Phi Beta Kappa on the quality, depth, and breadth of the student's record is the deciding factor in every case.

Any questions about criteria for election to Phi Beta Kappa (including equivalency examinations in foreign languages) should be directed to the Phi Beta Kappa Office, Dr. Denis Sullivan, 301-405-8986.

## ACADEMIC INTEGRITY AND STUDENT CONDUCT CODES

### Academic Integrity

The University of Maryland is an academic community. Its fundamental purpose is the pursuit of knowledge. Like all other communities, the University can function properly only if its members adhere to clearly established goals and values. Essential to the fundamental purpose of the University is the commitment to the principles of truth and academic honesty. Accordingly, the *Code of Academic Integrity* is designed to ensure that the principle of academic honesty is upheld. While all members of the University share this responsibility, the *Code of Academic Integrity* is designed so that special responsibility for upholding the principle of academic honesty lies with the students.

The University's *Code of Academic integrity* is a nationally recognized honor code, administered by a Student Honor Council. Any of the following acts, when committed by a student, shall constitute academic dishonesty:

**Cheating:** *intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.*

**Fabrication:** *intentional and unauthorized falsification or invention of any information or citation in an academic exercise.*

**Facilitating academic dishonesty:** *intentionally or knowingly helping or attempting to help another to violate any provision of the Code of Academic Integrity.*

**Plagiarism:** *intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.*

If it is determined that an act of academic dishonesty has occurred, a grade of "XF" is considered the normal sanction for undergraduate students. The grade of "XF" is noted on the academic transcript as "failure due to academic dishonesty. Lesser or more severe sanctions may be imposed when there are circumstances to warrant such consideration. Suspension or expulsion from the University may be imposed even for a first offense. Students should consult the Code of Academic Integrity, Appendix O, for further information regarding procedures for reporting and resolving allegations of academic dishonesty.

### Honor Pledge

In 2002, the University adopted an honor pledge in which students are asked to write out and sign the pledge on major assignments and exams, as designated by the instructor. The Honor Pledge is designed to encourage instructors and students to reflect upon the University's core institutional value of academic integrity. Professors who invite students to sign the Honor Pledge signify that there is an ethical component to teaching and learning. Student who write by hand and sign the Pledge affirm a sense of pride in the integrity of their work. The Pledge states:

*"I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/ examination."*

**For more information regarding the Code of Academic Integrity, the Honor Pledge, or the Student Honor Council please refer to <http://www.shc.umd.edu> or contact the Office of Student Conduct.**

### Student Conduct

The primary purpose for the imposition of discipline in the university setting is to protect the campus community. Consistent with that purpose, reasonable efforts are also made to foster the personal and social development of those students who are held accountable for violations of university regulations. Compared to disciplinary systems at many universities, University of Maryland students are given unusual authority and responsibility for management of the campus process. Membership on the student judiciary is an extraordinary educational experience, and opportunity to be of service to the community, and a personal honor.

Cases that may result in suspension or expulsion are heard by judicial boards, comprised entirely of students. In such cases, students are accorded substantial procedural protections, including an opportunity for a hearing and an appeal. Less serious cases are resolved in disciplinary conferences conducted by University staff members. Acts of violence (including any sexual assault), intimidation, disruption, or rioting; substantial theft or vandalism; fraud or forgery; use or distribution of illegal drugs; and any *Code of Student Conduct* violation motivated by

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considerations of sex, race, ethnic origin, sexual orientation or religion are forms of misconduct that most frequently result in dismissal from the University. Students accused of violating University disciplinary regulations are encouraged to discuss the allegations with their parents or guardians, legal counsel, and with appropriate University staff members.

### Prohibited Conduct

A complete list of conduct considered prohibited as well procedures for resolving allegations of misconduct may be found in the *Code of Student Conduct*, available in Appendix C or through the Office of Student Conduct website at [www.studentconduct.umd.edu](http://www.studentconduct.umd.edu). The following is general notice of what constitutes prohibited conduct and is subject to disciplinary action:

- Use, possession or storage of any weapon
- Causing physical harm or apprehension of harm
- Initiating or causing to be initiated a false report, warning or threat of fire, explosion or other emergency
- A criminal offense committed off-campus
- Violating the terms of any disciplinary sanction
- Misusing or damaging fire safety equipment
- Distribution or possession for purposes of distribution of any illegal drug
- Furnishing false information to the University
- Making, possessing, or using any forged, altered, or falsified instrument of identification
- Interfering with the freedom of expression of others
- Theft of property or of services; possession of stolen property
- Destroying or damaging the property of others
- Engaging in disorderly or disruptive conduct
- Failure to comply with the directions of University officials
- Use or possession of any illegal drug
- Use or possession of fireworks on University premises
- Violation of published University regulations or policies including the residence hall contract, alcohol policy, parking regulations, rioting, and hazing policy.

**Note:** Effective April 2006, students who violate the following section will be dismissed from the University:

rioting, assault, theft, vandalism, fire-setting, or other serious misconduct related to a University-sponsored event, occurring on- or off-campus, that results in harm to persons or property or otherwise poses a threat to the stability of the campus or campus community may result in disciplinary action regardless of the existence, status, or outcome of any criminal charges in a court of law related to misconduct associated with a University-sponsored event.

For more information regarding student conduct issues, contact the Office of Student Conduct at 301-314-8204 or visit [www.studentconduct.umd.edu](http://www.studentconduct.umd.edu).

## Summary of Policies and Regulations Pertaining to Students General Summary

**Note:** Descriptions of these policies are for general information only. Please refer to specific texts for official language. Modifications may be made or other policies may be added throughout the year. Please contact the Office of Judicial Programs for additional information.

In addition to the policies reprinted or identified elsewhere (e.g., the Code of Student Conduct and Code of Academic Integrity), students enrolled at College Park are expected to be aware of, and to abide by, the policies summarized below. Information about where the complete texts may be consulted follows each summary. This information was compiled and provided by the Office of Judicial Programs.

**Alcoholic Beverage Policy and Procedures** forbid unauthorized possession, use, or distribution of alcoholic beverages on university property. Certain exceptions are specified. (Information subject to change pending legislation. Originally approved by the Board of Regents, September 26, 1969. Legal drinking age in the State of Maryland is 21 years. Reprinted in Student Handbook.)

**Policy on Amplifying Equipment** restricts the hours and locations of use of certain forms of sound amplifying equipment, provides a procedure for the authorization of otherwise restricted uses of sound amplifying equipment, and locates responsibility for complaints with those using the equipment. (Adopted by the university Senate, June 2, 1970. Reprinted in the Student Handbook.)

**Campus Activities Policies** regulate reservation of university facilities, advertising, co-sponsorship, cancellation and postponement, and various other matters relating to programs of student organizations. (Published in the Event Management Handbook. For more information, contact the Campus Reservations Office.)

**Computer Use Policy** defines standards for reasonable and acceptable use of University computer resources, including electronic mail.

**Policy on Demonstrations** establishes guidelines for demonstrations and picketing. Stipulates that the university will take steps necessary both to protect the right of individuals or groups to demonstrate and to protect the freedom of speech, assembly, and movement of any individual or group. (Adopted by the university Senate, June 2, 1970. Reprinted in the Student Handbook.)

**Examination Rules** set general standards for student conduct during examinations. They are applicable to all examinations given at the College Park campus unless contrary instructions are provided by the faculty member administering the examination. (Printed on most university examination books. See also chapter 4.)

**Policy on Hazing and Statement on Hazing** prohibits hazing, which is defined as “intentionally or recklessly subjecting any person to the risk of bodily harm, or severe emotional distress, or causing or encouraging any person to commit an act that would be a violation of law or university regulations, for the purpose of initiating, promoting, fostering, or confirming any form of affiliation with a student group or organization, as defined by the Code of Student Conduct. The express or implied consent of the victim will not be a defense.” For more information, contact the Office of Judicial Programs.

**Campus Parking Regulations** cover registration, permits, fees, violations, enforcement, fines, towing and impounding, reviews, carpool programs, special events parking, emergency parking, and a number of other areas. Notably, the regulations provide that “[t]he responsibility of finding an authorized parking space rests with the driver.” Students who have 55 or fewer credits and live in the “Graham Cracker Complex” cannot register for a parking permit. (Current regulations in effect since July, 1997. An informational guide is distributed to all who register for parking. For more information, contact the Department of Campus Parking.)

**Policy Pertaining to Public Displays** defines standards for permissible displays, objects or structures not designed to be continuously carried or held by a demonstrator or picketer so as simultaneously to protect freedom of expression and prevent unreasonable threats to the health, safety, security, or mission of the campus. (Approved by the President, March 29, 1989. For more information, contact the Office of the Vice President for Student Affairs.)

**Residence Hall Rules** define prohibited conduct in and around campus residence and dining halls, buildings, and at Department of Resident Life- and/or Department of Dining Services-sponsored activities, in addition to that which falls under the Residence Halls/Dining Services Agreement, Code of Student Conduct, and federal, state and local laws. The rules also specify standard sanctions for rule violations, and provide for an adjudication process. (Reprinted in Community Living, the Residence Halls and Dining Services Handbook. For more information, contact the Department of Resident Life.)

**Sexual Assault Policy** offers advice and guidance for complainants, including assistance in filing criminal complaints. Defines and sets penalties for sexual assault. Specifies that “[s]exual assault is a serious offense and the standard sanction for any sexual assault, including acquaintance rape, is expulsion...”

**Student Organization Registration Guidelines** define student organizations, responsibilities of officers, and registration, and establish types of registration, a registration process, certain privileges of registered student organizations in good standing, sanctions which may result from registration review, and guidelines for constitutions. (For more information, or for a copy of the guidelines, contact the Office of Campus Programs.)

**Declaration of Student Rights** Defines certain rights, including expression and inquiry, assembly, thought, conscience, and religion, privacy, due process, and equal protection. Affirms “duties and responsibilities” arising from such rights.

## CHAPTER 5

# General Education Requirements

## CORE LIBERAL ARTS AND SCIENCES STUDIES PROGRAM (CORE) General Education Program and Requirements

Office of the Associate Provost for Academic Affairs and Dean for Undergraduate Studies  
2130 Mitchell Building, 301-405-9359  
Director CORE Planning and Implementation: Laura Slavin  
[www.ugst.umd.edu/core](http://www.ugst.umd.edu/core)

*In our world of rapid economic, social, and technological change, students need a strong and broadly based education. General education helps students achieve the intellectual integration and awareness they need to meet challenges in their personal, social, political, and professional lives. General education courses introduce the great ideas and controversies in human thought and experience. A solid general education provides a strong foundation for the life-long learning that makes career-change goals attainable. The breadth, perspective, and rigor provided by the CORE curriculum helps Maryland graduates become "educated people."*

Donna B. Hamilton  
Associate Provost and Dean for Undergraduate Studies

### BROAD OUTCOME GOALS FOR THE CORE CURRICULUM [Approved October 6, 2005 by the University Senate CORE Committee]

After completion of CORE Program requirements students should be able to:

1. demonstrate understanding of major findings and ideas in a variety of disciplines beyond the major;
2. demonstrate understanding of methods, skills, tools and systems used in a variety of disciplines, and historical, theoretical, scientific, technological, philosophical, and ethical bases in a variety of disciplines;
3. use appropriate technologies to conduct research on and communicate about topics and questions and to access, evaluate and manage information to prepare and present their work effectively to meet academic, personal, and professional needs;
4. demonstrate critical analysis of arguments and evaluation of an argument's major assertions, its background assumptions, the evidence used to support its assertions, and its explanatory utility;
5. understand and articulate the importance and influence of diversity within and among cultures and societies;
6. understand and apply mathematical concepts and models; and
7. communicate effectively, through written and oral communication and through other forms as appropriate.

To obtain a CORE Academic Planner and Record Keeper, visit your college advising office, or the Office of Undergraduate Studies (2130 Mitchell Building).

### Who Completes CORE?

To earn a baccalaureate degree, all students at the University of Maryland, College Park complete both a major course of study and a campus-wide general education program. Students who enter the University May 1990 and after complete CORE requirements.

**Exceptions:** Students who enter the University with nine or more credits earned before May 1990 from the University of Maryland, College Park, or any other college may complete their general education requirements under the University Studies Program (USP), subject to certain limitations. (See "USP" and "Statute of Limitations..." sections below.) Advanced Placement (AP) and other examination-based credits do not count in these determinations.

### University Studies Program (USP)

For detailed information about USP requirements, see undergraduate catalogs dated 1992 or earlier, or contact the CORE program at 2130 Mitchell Building, 301-405-9359. Information on USP is also at: [www.ugst.umd.edu/core/usp.html](http://www.ugst.umd.edu/core/usp.html) NOTE: Students who graduate under USP requirements August 1994 and thereafter must fulfill the Advanced Studies requirements described in the Fall 1994 and subsequent catalogs. (See CORE Advanced Studies section below..)

### Statute of Limitations for Previous General Education Programs (GEP, GUR, USP)

Undergraduate students who return to the university after August 1987 no longer have the option of completing general education requirements under the older General Education Program (GEP) or the General University Requirements (GUR). Thereafter, following any substantive change in general education requirements (like the change in Fall 1990 from USP to CORE), undergraduate students returning or transferring to College Park after a separation of five continuous years must follow the requirements in effect at the time of re-entry. An exception may be granted to those students who at the time of separation had completed 60 percent of the general education requirements then in effect.

### Maryland Public Community College Students

For the purpose of determining which general education program is required (CORE or USP), students transferring to the University of Maryland from Maryland public community colleges shall be treated as if their registration dates were concurrent with enrollment at this university.



## 44 General Education Programs

### CORE Program Components:

1. **FUNDAMENTAL STUDIES** build competence and confidence in basic writing and mathematics. Mastery of these basics enhances success both during and after college. Students begin fulfilling Fundamental Studies requirements in their first year at the University.
2. **DISTRIBUTIVE STUDIES** focus on breadth, including courses in the following categories: Literature; The History or Theory of the Arts; Humanities; Physical Sciences; Life Sciences; Mathematics and Formal Reasoning; Social or Political History; Behavioral and Social Sciences; and Interdisciplinary and Emerging Issues. Students generally pursue Distributive Studies in the first two years of their course work.
3. **ADVANCED STUDIES** allow students to enhance their degree and strengthen their critical thinking and writing skills by taking two upper-level courses outside their major after 60 credits. Students may substitute an approved CORE Capstone course in their major or a senior or honors thesis for one of these two courses.
4. **HUMAN CULTURAL DIVERSITY** gives students the opportunity to examine their ideas and values in the light of various cultural, intellectual, and social contexts. Diversity courses increase knowledge of what constitutes difference and increase students' ability to learn from and appreciate people, cultures, ideas, and art forms that are often different from those they know best. Students may complete the Cultural Diversity requirement at any time before graduation.

### CORE Program Outline

#### IMPORTANT NOTES about Fundamental and Distributive Studies courses:

- **MUST** be selected from the approved CORE course lists to count toward CORE requirements.
- **MAY** also be used to satisfy college, major, and/or supporting area requirements if the courses also appear on CORE Fundamental or Distributive Studies lists.
- **CORE** courses **MAY NOT** be taken on a Pass-Fail basis.

#### I. CORE Fundamental Studies

Three Courses (9 credits) Required

##### 1. One course in Introduction to Writing (Must be attempted within the first 30 credits; must be passed within the first 60 credits.)

###### Approved CORE Introduction to Writing Courses:

(Select the appropriate course based on requirements listed.)

- ENGL 101 Introduction to Writing (Students for whom English is a second language may register for ENGL 101X instead of ENGL 101.)
- ENGL 101A Introduction to Writing (Must be taken if student has TSWE (SAT verbal subtest) score below 33)
- ENGL 101H Introduction to Writing (Honors Students)
- ENGL 101X Introduction to Writing (Students for whom English is a second language may register for ENGL 101X instead of ENGL 101.)

**Note: Based on scores from either the TOEFL or MEIP, students may be required to complete a program of English language instruction for non-native speakers through the MEI before being allowed to register for ENGL 101X.**

###### Exemptions from Introduction to Writing requirement:

- AP English Language and Composition test score of 4 or 5, OR
- SAT verbal score 670 or above for scores achieved between May 1995 and February 2005. (In April 1995, the Educational Testing Service re-centered the scores on the SAT. Students whose test scores are from before April 1995 must have received a score of 600 or above to be exempt from Freshman Writing. This re-centering does not reflect a raising of the requirement for exemption, but a change in the scoring system used by ETS.
- In March 2005, ETS began the use of a new SAT test for writing. Information about exemption in connection with SAT tests taken after March 2005 will be available at [www.english.umd.edu/programs/FreshmanWriting/Exemptions.html](http://www.english.umd.edu/programs/FreshmanWriting/Exemptions.html)

##### 2. One course in Mathematics (Must be attempted within the first 30 credits; must be passed within the first 60 credits.)

###### Approved CORE Fundamental Studies Mathematics Courses:

- MATH 110 Elementary Mathematical Models; OR
- MATH 112 College Algebra with Applications and Trigonometry; OR
- MATH 113 College Algebra with Applications; OR
- MATH 115 Pre-calculus; OR

Any 100-or 200-level MATH or STAT course except MATH 199, 210, 211, 212, 213, 214, and 274.

###### Exemptions from Mathematics requirement:

- SAT Math score of 600 or above; OR
- AP score of 4 or above in Calculus AB or BC; OR
- AP score of 4 or above in Statistics; OR
- CLEP Calculus Exam score of 50 or higher.

Note: If you are placed in the Developmental Math Program by the Mathematics Placement Exam, you may be offered the opportunity to combine your Developmental course with the appropriate subsequent course of Math 110, 111, 113, or 115 and thus finish both in one semester. For further information, please see the Developmental Math Program web site: [www.math.umd.edu/undergraduate/courses/fsm.shtml](http://www.math.umd.edu/undergraduate/courses/fsm.shtml)

##### 3. One course in Professional Writing (taken after 60 credits).

###### Approved CORE Professional Writing Courses:

(Select the appropriate course based on requirements or interests listed.)

- ENGL 391 Advanced Composition
- ENGL 391A Advanced Composition (Writing about the Arts)
- ENGL 391H Advanced Composition (Honors Students)
- ENGL 391N Advanced Composition (Nonfiction Narrative Writing and Editing)
- ENGL 392 Advanced Composition (Pre-Law)
- ENGL 392P Advanced Composition (Writing Case Studies and Investigative Reports)
- ENGL 393 Technical Writing
- ENGL 393E Technical Writing (Writing about the Environment)
- ENGL 393H Technical Writing (Honors Students)
- ENGL 393S Technical Writing (Science Writing)
- ENGL 393X Technical Writing (English as a Second Language)
- ENGL 394 Business Writing
- ENGL 394E Business Writing (Writing about Economics)
- ENGL 394N Business Writing (Writing for Non-Profits)
- ENGL 395 Technical Writing (Pre-Med and Health careers)

###### Exemption from Professional Writing Requirement:

- Grade of "A" in ENGL 101 (NOT ENGL 101A or ENGL 101X), except for students majoring in Engineering. All Engineering majors must take ENGL 393.

**Note: No exemption from the Professional Writing requirement will be granted for achievement on SAT verbal exam. Professional Writing courses cannot be used to fulfill Advanced Studies requirements.**

#### II. CORE Distributive Studies

Nine Courses (28 credits) Required

See the most current listings of approved CORE courses at [www.ugst.umd.edu/core](http://www.ugst.umd.edu/core), or the online Schedule of Classes at [www.testudo.umd.edu/ScheduleOfClasses.html](http://www.testudo.umd.edu/ScheduleOfClasses.html)

**1. Humanities and the Arts—three courses required:**

- One course from Literature (HL) list, and
- One course from The History or Theory of the Arts (HA) list, and
- One more course from Literature (HL), OR The History or Theory of the Arts (HA), OR Humanities (HO) lists

**Note:** There is no specific CORE requirement for a course from the Humanities (HO) list.

**2. Mathematics and the Sciences—three courses required:**

- Up to two courses from Physical Sciences (PL/PS) lists, and
- Up to two courses from Chemical and Life Sciences (LL/LS) lists, and
- Up to one course from Mathematics and Formal Reasoning (MS) list

**Notes:** At least one science course **MUST** include or be accompanied by a lab taken in the same semester (LL or PL lists only). More than one lab course may be taken. Courses must be taken from at least two of the three lists. There is no specific CORE requirement for a course from the Mathematics and Formal Reasoning (MS) list.

**3. Social Sciences and History—three courses required:**

- One course from Social or Political History (SH) list, and
- Two courses from Behavioral and Social Sciences (SB) list

**4. Interdisciplinary and Emerging Issues (CORE CODE: IE)****OPTIONAL CORE DISTRIBUTIVE STUDIES CATEGORY  
EFFECTIVE BEGINNING FALL 2005**

*The IE category features courses that provide an interdisciplinary examination of issues (theory, questions, methods) across CORE areas, or present a significant portion of content that does not fit into any of the specific CORE areas but deals with contemporary issues, emerging disciplines, or other categories of knowledge, skills, and values that lie outside these areas.*

Students may take **one** IE course in place of one of the following:

- The third course in the Humanities and the Arts category (one HL and one HA must be taken) OR
- The third course in the Sciences and Mathematics category (two science courses chosen from PL, PS, LL, or LS lists including at least one course from the LL or PL lists must be taken) OR
- One SB course in the Social Sciences category (one SH and one SB must be taken)

See the CORE website at [www.ugst.umd.edu/core](http://www.ugst.umd.edu/core) for details on how to use the IE option and for the list of courses (added as approved).

The online Schedule of Classes for fall 2006 at [www.testudo.umd.edu/ScheduleOfClasses.html](http://www.testudo.umd.edu/ScheduleOfClasses.html) will include approved IE courses.

**IMPORTANT NOTES ON THE IE OPTION**

- IE is an optional CORE distributive studies category; Students may fulfill CORE requirements without taking an IE course.
- Only one IE course may be counted toward fulfilling CORE Distributive Studies requirements.
- Whether a student takes an IE course or not, total CORE Distributive Studies course and credit requirements remain the same: at least 9 courses and 28 credits.

**III. CORE Advanced Studies**

Two Courses (6 credits) Required

Students may choose their two Advanced Studies courses from a wide range of upper-level offerings outside their majors. Good choices include courses that mesh with or expand educational goals or other interests, increase knowledge, and strengthen critical thinking and writing skills.

**CORE Advanced Studies Requirement:** Two upper-level (300- or 400-level) courses outside the major taken after 60 credits. Students may substitute a CORE-approved senior capstone course in their major or a senior or honors thesis for one of the two required Advanced Studies courses. Enrollment in C O R E Capstone courses will be subject to departmental guidelines. The other course must be outside the major. Students completing double majors or double degrees will have fulfilled the campus Advanced Studies requirement, unless their primary major or college has additional requirements. The student's academic college determines whether or not a course is "outside the major" for the purpose of fulfilling CORE Advanced Studies.

**The following may NOT be used to fulfill Advanced Studies requirements:**

- Professional Writing courses (courses that meet the Fundamental Studies upper-level writing requirement);
- courses used to meet Distributive Studies requirements;
- internships, practica, or other experiential learning types of courses;
- courses taken on a pass/fail basis.

One independent studies course (minimum of three credits, outside the major) may be used toward Advanced Studies requirements as long as it is consistent with the rules above and the faculty member supervising the independent study agrees that it is appropriate for Advanced Studies.

**Notes:** CORE Capstone courses must be taken within the major. A senior thesis (minimum of 3 credits) or successful completion and defense of an honors thesis in either the General Honors or a Departmental Honors Program (minimum of 3 credits) counts as CORE Capstone credit.

**IV. CORE Human Cultural Diversity**

One Course (3 credits) Required

See the most current listings of approved CORE courses at [www.ugst.umd.edu/core](http://www.ugst.umd.edu/core), or the online Schedule of Classes at [www.testudo.umd.edu/ScheduleOfClasses.html](http://www.testudo.umd.edu/ScheduleOfClasses.html)

Cultural Diversity courses focus primarily on: (a) the history, status, treatment, or accomplishment of women or minority groups and subcultures; (b) non-Western culture, or (c) concepts and implications of diversity.

**Note:** A number of CORE Human Cultural Diversity courses also satisfy CORE Distributive Studies, Advanced Studies, or a college, major, and/or supporting area requirement.

**Study Abroad and Satisfying Core Requirements**

Students may use study abroad to earn credit toward University of Maryland CORE Distributive and/or Advanced Studies requirements. All students considering study abroad must meet with a Study Abroad Advisor and complete the Permission to Study Abroad form (available at the Study Abroad Office). The Study Abroad Office determines if the course work will be completed through an accredited academic program and be eligible for transfer credit. Upon approval, the number of credits will be determined for each course. How the courses will apply to a student's graduation requirements will be determined by the student's advising college. CORE Distributive Studies equivalencies (if applicable) must be shown clearly on the Study Abroad form with approvals from the UM academic departments which offer similar courses. CORE Advanced Studies criteria also apply to Study Abroad courses students wish to count toward CORE Advanced Studies. Some college/departmental guidelines and restrictions may apply.

Participation in a study abroad program with the successful completion and transfer of at least 9 credits abroad automatically waives a student's CORE Human Cultural Diversity requirement.

**Approved Courses for the CORE Program****Notes about the lists:**

Please refer to the program description above for the requirements in each CORE Category.

1. These lists were current as of **1/30/06**. Courses are added and deleted over time. A selection of the approved courses is offered each semester. Lists of approved CORE courses at [www.ugst.umd.edu/core](http://www.ugst.umd.edu/core), or the online Schedule of Classes at: [www.testudo.umd.edu/ScheduleOfClasses.html](http://www.testudo.umd.edu/ScheduleOfClasses.html) include new additions.
2. Some courses are approved for CORE for one semester only. This list offers special opportunities and changes each semester. These courses are often added after the Schedule goes to press. See the online resources in note 1. above for the most current lists.
3. Course numbers and titles change from time to time. See the online resources noted above for the most current lists.
4. In a particular semester, courses may be cross-listed or shared by more than one department and may appear under more than one course number. If cross-listed or shared courses are approved for CORE, this information will be available in the online listings. Frequent instances include courses in AASP, AAST, AMST, CMLT, JWST, LGBT, and WMST.
5. Honors (HONR) courses are not included in the catalog lists. For information about HONR courses that are approved for CORE, please refer to the online resources noted above. Other resources include the current "The University Honors Program Information and Course Description Booklet" and the University Honors Program website: [www.honors.umd.edu](http://www.honors.umd.edu)
6. For information about CORE Fundamental Studies courses, please see the Fundamental Studies section above.

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CORE Distributive Studies

In the following CORE Distributive Studies list, courses noted “(D)” also meet the CORE Diversity Requirement.

Humanities and the Arts

Literature

(CORE CODE: HL):

|           |   |
|-----------|---|
| AASP 298L | Intro. to African-American Literature (also as ENGL 234) (D)                  |
| AAST 233  | Intro. to Asian American Literature (also as ENGL 233) (D)                    |
| CHIN 213  | Chinese Poetry into English: An Introduction (D)                              |
| CLAS 100  | Classical Foundations   |
| CLAS 170  | Greek and Roman Mythology   |
| CLAS 270  | Greek Literature in Translation   |
| CLAS 271  | Roman Literature in Translation   |
| CMLT 235  | Intro. to Literatures of the African Diaspora (also as ENGL 235) (D)          |
| CMLT 270  | Global Literature & Social Change (D)   |
| CMLT 275  | World Literature by Women (also as WMST 275) (D)                              |
| CMLT 277  | Literatures of the Americas (D)   |
| ENGL 201  | Western World Literature: Homer to the Renaissance                            |
| ENGL 202  | Western World Literature: Renaissance to the Present                          |
| ENGL 205  | Introduction to Shakespeare   |
| ENGL 210  | Themes in Early English Literature: Love, Adventure, and Identity             |
| ENGL 211  | English Literature: Beginnings to 1800  |
| ENGL 212  | English Literature: 1800 to the Present                                       |
| ENGL 221  | American Literature: Beginning to 1865  |
| ENGL 222  | American Literature: 1865 to the Present                                      |
| ENGL 233  | Intro. to Asian American Literature (also as AAST 233) (D)                    |
| ENGL 234  | Introduction to African-American Literature (also as AASP 298L) (D)           |
| ENGL 235  | Introduction to the Literature of the African Diaspora (also as CMLT 235) (D) |
| ENGL 240  | Introduction to Fiction, Poetry and Drama                                     |
| ENGL 241  | Introduction to the Novel   |
| ENGL 243  | Introduction to Poetry  |
| ENGL 244  | Introduction to Drama   |
| ENGL 250  | Introduction to Literature by Women (also as WMST 255) (D)                    |
| ENGL 262  | The Hebrew Bible: Narrative (also as JWST 262)                                |
| ENGL 263  | The Hebrew Bible: Poetry and Prophecy (also as JWST 263)                      |
| ENGL 265  | Introduction to Lesbian, Gay, and Bisexual Literatures (also as LGBT 265) (D) |
| ENGL 277  | Mythologies: An Introduction  |
| ENGL 278S | The American Short Story in Its World Context                                 |
| ENGL 278W | Literature in a Wired World   |
| FREN 240  | Masterworks of French Literature in Translation                               |
| FREN 241  | Women Writers of French Expression in Translation (also as WMST 241) (D)      |
| FREN 242  | Black Writers of French Expression in Translation (D)                         |
| FREN 250  | Introduction to French Literature   |
| GERM 281  | Women in German Literature and Society (also as WMST 281) (D)                 |
| GERM 282  | Germanic Mythology  |
| GERM 283  | Viking Culture and Civilization   |
| GERM 284  | Germanic Chivalric Culture  |
| GERM 285  | German Film and Literature  |
| GERM 286  | Ancient Indic Culture and Civilization  |
| GERM 287  | Ancient Celtic Culture and Civilization                                       |
| ITAL 241  | Modern Italian Women Writers - in Translation                                 |
| ITAL 251  | Aspects of Contemporary Italian Literature and Culture                        |
| JAPN 217  | Japanese Literature in the Age of the Samurai (D)                             |
| JAPN 298A | Modern Japanese Fiction and Film in Translation                               |
| JWST 262  | The Hebrew Bible: Narrative (also as ENGL 262)                                |
| JWST 263  | The Hebrew Bible: Poetry and Prophecy (also as ENGL 263)                      |

|           |  |
|-----------|--|
| JWST 270  | Fantasy and the Supernatural in Jewish Literature (D)  |
| JWST 272  | Jewish Literature in Translation   |
| LGBT 265  | Introduction to Lesbian, Gay, and Bisexual Literatures (also as ENGL 265) (D)  |
| PORT 228A | Latin American Literature and Society: An Interdisciplinary Approach to the Amazon Ecosystem (also as SPAN 228A) (D) |
| PORT 231  | Introduction to the Literatures of the Portuguese Language (D)   |
| RUSS 221  | Masterworks of Russian Literature I  |
| RUSS 222  | Masterworks of Russian Literature II   |
| SPAN 221  | Introduction to Literature   |
| SPAN 222  | Cultural Difference in Contemporary Latin American Culture (D)   |
| SPAN 224  | Violence and Resistance in the Americas (D)  |
| SPAN 228A | Latin American Literature and Society: An Interdisciplinary Approach to the Amazon Ecosystem (also as PORT 228A) (D) |
| WMST 241  | Women Writers of French Expression in Translation (also as FREN 241) (D)   |
| WMST 255  | Introduction to Literature by Women (also as ENGL 250) (D)   |
| WMST 275  | World Literature by Women (also as CMLT 275) (D)   |
| WMST 281  | Women in German Literature and Society (also as GERM 281) (D)  |

Humanities and the Arts

The History or Theory of the Arts

(CORE CODE: HA):

|           |  |
|-----------|--|
| AMST 205  | Material Aspects of American Life                                  |
| ARCH 170  | Introduction to the Built Environment                              |
| ARCH 223  | History of Non-Western Architecture (D)                            |
| ARHU 298B | In Concert   |
| ARHU 298L | The Creative Process in Dance (D)                                  |
| ARTH 100  | Introduction to Art  |
| ARTH 200  | Art of the Western World to 1300                                   |
| ARTH 201  | Art of the Western World after 1300                                |
| ARTH 250  | Art and Archeology of Ancient America (D)                          |
| ARTH 275  | Art and Archaeology of Africa (D)                                  |
| ARTH 290  | Art of Asia (D)  |
| ARTT 150  | Introduction to Art Theory   |
| CMLT 214  | Film, Form, and Culture  |
| CMLT 280  | Film Art in a Global Society (D)                                   |
| DANC 200  | Introduction to Dance (D)  |
| ENGL 245  | Film and the Narrative Tradition                                   |
| FREN 298  | Aspects of French Civilization                                     |
| MUET 200  | World Popular Musics and Identity (D)                              |
| MUET 210  | The Impact of Music on Life (D)                                    |
| MUET 220  | Selected Musical Cultures of the World (D)                         |
| MUSC 130  | Survey of Music Literature   |
| MUSC 140  | Music Fundamentals I   |
| MUSC 205  | History of Rock Music, 1950 – Present                              |
| PHIL 230  | Philosophy of the Arts   |
| RUSS 298K | Soviet Film: Propaganda, Myth, Modernism                           |
| THET 110  | Introduction to the Theatre  |
| THET 195  | Gender and Performance (D)   |
| THET 240  | African Americans in Film and Theatre (D)                          |
| THET 290  | American Theatre 1750-1890   |
| THET 291  | American Theatre 1890-Present                                      |
| THET 293  | Black Theatre and Performance I (D)                                |
| THET 294  | Black Theatre and Performance II (D)                               |
| WMST 250  | Introduction to Women’s Studies: Women, Art, and Culture (D)       |
| WRLD 125  | The Creative Drive: Creativity in Music, Architecture, and Science |

Humanities and the Arts

Humanities

(CORE CODE: HO):

|           |  |
|-----------|--|
| AASP 200  | African Civilization   |
| AMST 201  | Introduction to American Studies   |
| AMST 203  | Popular Culture in America   |
| AMST 204  | Film and American Culture Studies  |
| AMST 211  | Technology and American Culture  |
| ARHU 205  | Second Year Seminar in Honors Humanities                                     |
| ARHU 298A | Medieval and Renaissance Humanism, Humanists, and Their World                |
| CHIN 202  | Intermediate Written Chinese I   |
| CHIN 204  | Intermediate Written Chinese II  |
| CHIN 205  | Intermediate Chinese - Accelerated Track                                     |
| CMLT 291  | International Perspectives on Lesbian and Gay Studies (also as LGBT 291) (D) |

|           |  |
|-----------|--|
| COMM 200  | Critical Thinking and Speaking   |
| EDPL 210  | Historical and Philosophical Perspectives on Education                         |
| ENGL 280  | Introduction to the English Language   |
| ENGL 282  | Introduction to Rhetorical Theory  |
| FREN 201  | Intermediate French  |
| FREN 202  | Intermediate French Review   |
| FREN 204  | Review Grammar and Composition   |
| FREN 211  | French Reading and Conversation  |
| GERM 201  | Intermediate German I  |
| GERM 202  | Intermediate German II   |
| GERM 203  | Intensive Intermediate German  |
| GERM 280  | German-American Cultural Contrast  |
| HISP 200  | The Everyday & the “American” Built Environment (D)                            |
| HIST 110  | The Ancient World  |
| HIST 112  | The Rise of the West: 1500-1789  |
| HIST 216  | Introduction to the Study of World Religions (D)                               |
| ITAL 122  | Accelerated Italian II   |
| ITAL 203  | Intermediate Italian   |
| ITAL 204  | Review Grammar and Composition   |
| ITAL 261  | Cuisine, Culture, and Society in Italy Yesterday and Today (Taught in Italian) |
| ITAL 271  | The Italian-American Experience  |
| JWST 219A | The World of the Dead Sea Scrolls  |
| JWST 250  | Fundamental Concepts of Judaism (also as PHIL 234)                             |
| KORA 212  | Reading for Speakers of Korean II  |
| LARC 160  | Introduction to Landscape Architecture   |
| LASC 234  | Issues in Latin American Studies I (also as PORT 234 and SPAN 234) (D)         |
| LASC 235  | Issues in Latin American Studies II (also as PORT 235 and SPAN 235) (D)        |
| LATN 201  | Intermediate Latin   |
| LGBT 291  | International Perspectives on Lesbian and Gay Studies (also as CMLT 291) (D)   |
| LING 210  | Structure of American Sign Language (D)  |
| LING 240  | Language and Mind  |
| PHIL 100  | Introduction to Philosophy   |
| PHIL 140  | Contemporary Moral Issues  |
| PHIL 233  | Philosophy in Literature   |
| PHIL 234  | Fundamental Concepts of Judaism (also as JWST 250)                             |
| PHIL 236  | Philosophy of Religion   |
| PHIL 245  | Political and Social Philosophy I  |
| PHIL 250  | Philosophy of Science I  |
| PHIL 256  | Philosophy of Biology I  |
| PHIL 282  | Action and Responsibility  |
| PORT 223  | Portuguese Culture (in English)  |
| PORT 224  | Brazilian Culture (in English) (D)   |
| PORT 234  | Issues in Latin American Studies I (also as LASC 234 and SPAN 234) (D)         |
| PORT 235  | Issues in Latin American Studies II (also as LASC 235 and SPAN 235) (D)        |
| RUSS 201  | Intermediate Russian I   |
| RUSS 202  | Intermediate Russian II  |
| RUSS 281  | Russian Language and Pre-Revolutionary Culture                                 |
| RUSS 282  | Contemporary Russian Culture (D)   |
| RUSS 298M | Building a New Reality: Russian Cinema at the End of the 20th Century (D)      |
| SPAN 125  | Spanish Civilizations: From Kingdoms to Nationalities                          |
| SPAN 201  | Intermediate Spanish   |
| SPAN 202  | Intermediate Grammar and Composition   |
| SPAN 223  | U.S. Latino Culture (D)  |
| SPAN 234  | Issues in Latin American Studies I (also as LASC 234 and PORT 234) (D)         |
| SPAN 235  | Issues in Latin American Studies II (also as LASC 235 and PORT 235) (D)        |
| WMST 265  | Constructions of Manhood and Womanhood in the Black Community (D)              |

Sciences and Mathematics

Lab Courses

(CORE Lab Science courses are on the Physical and Life Sciences Lab lists ONLY.)  
Physical Sciences Lab  
(CORE CODE: PL):

|   |  |
|---|--|
| AOSC 200 & 201                                    | Weather and Climate and Laboratory                               |
| ASTR 100 & 111                                    | Introduction to Astronomy and Observational Astronomy Laboratory |
| (BOTH COURSES MUST BE TAKEN IN THE SAME SEMESTER) |  |
| ASTR 101  | General Astronomy  |

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|   |  |
|---|--|
| ASTR 121  | Introductory Astrophysics II – Stars and Beyond                                      |
| CHEM 131 & 132                                    | Fundamentals of General Chemistry & General Chemistry I Lab (formerly CHEM 103)      |
| (BOTH COURSES MUST BE TAKEN IN THE SAME SEMESTER) |  |
| GEOG 201 & 211                                    | Geography of Environmental Systems and Laboratory                                    |
| (BOTH COURSES MUST BE TAKEN IN THE SAME SEMESTER) |  |
| GEOL 100 & 110                                    | Physical Geology and Laboratory  |
| (BOTH COURSES MUST BE TAKEN IN THE SAME SEMESTER) |  |
| PHYS 102 & 103                                    | Physics of Music and Laboratory  |
| (BOTH COURSES MUST BE TAKEN IN THE SAME SEMESTER) |  |
| PHYS 106 & 107                                    | Light, Perception, Photography and Visual Phenomena and Laboratory                   |
| (BOTH COURSES MUST BE TAKEN IN THE SAME SEMESTER) |  |
| PHYS 115  | Inquiry into Physics   |
| PHYS 117  | Introduction to Physics  |
| PHYS 121  | Fundamentals of Physics I  |
| PHYS 122  | Fundamentals of Physics II   |
| PHYS 141  | Principles of Physics  |
| PHYS 142  | Principles of Physics  |
| PHYS 260 & 261                                    | General Physics: Vibrations, Waves, Heat, Electricity, and Magnetism and Laboratory  |
| (BOTH COURSES MUST BE TAKEN IN THE SAME SEMESTER) |  |
| PHYS 270 & 271                                    | General Physics: Electrodynamics, Light, Relativity, and Mod. Physics and Laboratory |
| (BOTH COURSES MUST BE TAKEN IN THE SAME SEMESTER) |  |
| PHYS 272 & 275                                    | Introductory Physics: Fields/ Experimental Physics I: Mechanics, Heat, and Fields    |
| (BOTH COURSES MUST BE TAKEN IN THE SAME SEMESTER) |  |

### Sciences and Mathematics

#### Lab Courses

**(CORE Lab Science courses are on the Physical and Life Sciences Lab lists only.)**

#### Life Sciences Lab (CORE CODE: LL):

|   |   |
|---|---|
| ANTH 220  | Introduction to Biological Anthropology (D)                         |
| BSCI 103  | The World of Biology  |
| BSCI 105  | Principles of Biology I   |
| BSCI 106  | Principles of Biology II  |
| BSCI 122  | Microbes and Society  |
| BSCI 124 & 125                                    | Plant Biology for Non-Science Students and Plant Biology Laboratory |
| (BOTH COURSES MUST BE TAKEN IN THE SAME SEMESTER) |   |
| BSCI 201  | Human Anatomy and Physiology I                                      |
| BSCI 223  | General Microbiology  |
| BSCI 224  | Animal Diversity  |
| CHEM 104  | Fundamentals of Organic and Biochemistry                            |
| NRSC 200  | Fundamentals of Soil Science  |
| PLSC 100  | Introduction to Horticulture  |
| PLSC 101  | Introduction to Crop Science  |

### Sciences and Mathematics

#### Non-Lab Courses

#### Physical Sciences Non-Lab

**(CORE CODE: PS):**

|          |  |
|----------|--|
| AOSC 123 | Causes and Implications of Global Change (also as GEOG/GEOL) |
| AOSC 200 | Weather and Climate  |
| ASTR 100 | Introduction to Astronomy (only if taken Fall 1993 or later) |
| ASTR 120 | Introductory Astrophysics – Solar System                     |
| ASTR 220 | Collisions in Space  |
| ENES 100 | Intro. to Engineering Design                                 |
| ENSP 101 | Introduction to Environmental Science                        |
| GEOG 123 | Causes and Implications of Global Change (also as GEOL/AOSC) |
| GEOG 140 | Coastal Environments   |
| GEOL 104 | Dinosaurs: A Natural History                                 |
| GEOL 120 | Environmental Geology  |

|          |  |
|----------|--|
| GEOL 123 | Causes and Implications of Global Change (also as GEOG/AOSC) |
| GEOL 212 | Planetary Geology  |
| GEOL 214 | Global Energy: Systems and Resources                         |
| PHYS 101 | Contemporary Physics   |
| PHYS 104 | How Things Work : Scientific Foundations                     |
| PHYS 111 | Physics in the Modern World                                  |
| PHYS 161 | General Physics: Mechanics and Particle Dynamics             |
| PHYS 171 | Introductory Physics: Mechanics and Relativity               |

### Sciences and Mathematics

#### Non-Lab Courses

#### Life Sciences Non-Lab (CORE CODE: LS):

|          |   |
|----------|---|
| BSCI 120 | Insects   |
| BSCI 205 | Environmental Science   |
| BSCI 206 | Chesapeake: A Living Resource   |
| KNES 260 | Science of Physical Activity and Cardiovascular Health                  |
| NFSC 100 | Elements of Nutrition   |
| NRSC 100 | International Crop Production-Issues and Challenges in the 21st Century |
| NRSC 105 | Soil and Environmental Quality  |
| PLSC 203 | Plants, Genes, and Biotechnology  |

### Sciences and Mathematics

#### Mathematics and Formal Reasoning

**(CORE CODE: MS):**

***ALL MS COURSES ARE NON-LAB AND NON-SCIENCE COURSES. THEY DO NOT FULFILL THE CORE REQUIREMENT FOR AT LEAST TWO SCIENCE COURSES.***

|           |                                       |
|-----------|---------------------------------------|
| GEOG 170  | Maps and Map Use                      |
| MATH 111  | Introduction to Probability           |
| MATH 140  | Calculus I                            |
| MATH 141  | Calculus II                           |
| MATH 220  | Elementary Calculus I                 |
| MATH 221  | Elementary Calculus II                |
| PHIL 170  | Introduction to Logic                 |
| PHIL 209P | Philosophy and Computers              |
| STAT 100  | Elementary Statistics and Probability |

### Social Sciences and History

#### Social or Political History

**(CORE CODE: SH):**

|           |   |
|-----------|---|
| AASP 100  | Introduction to African American Studies (D)  |
| AASP 202  | Black Culture in the United States (D)  |
| AAST 201  | Asian American History* (also as HIST 219M) (D)   |
| AAST 222  | Immigration and Ethnicity in the United States (also as HIST 222) (D)                           |
| ARHU 298I | American Slaver - American Freedom: The African-American Experience Throughout Emancipation (D) |
| ARHU 298K | The History of the Book: Authorship, Reading, and Publishing from clay tablet to Hypertext      |
| CPSP 288E | Americans and the Wilderness  |
| ENGL 260  | Introduction to Folklore  |
| HIST 106  | American Jewish Experience (also as JWST 141)   |
| HIST 111  | The Medieval World  |
| HIST 113  | Modern Europe: 1789 - Present   |
| HIST 120  | Islamic Civilization (D)  |
| HIST 122  | African Civilizations to 1800 (D)   |
| HIST 123  | Sub-Saharan Africa since 1800 (also as AASP) (D)  |
| HIST 126  | Jewish Civilization (also as JWST 121)  |
| HIST 156  | History of the United States to 1865  |
| HIST 157  | History of the United States since 1865   |
| HIST 174  | Introduction to the History of Science  |
| HIST 175  | Science and Technology in Western Civilization  |
| HIST 210  | Women in America to 1880 (also as WMST 210) (D)   |
| HIST 211  | Women in America since 1880 (also as WMST 211) (D)  |
| HIST 212  | Women in Western Europe, 1750 - Present (also as WMST 212) (D)                                  |
| HIST 213  | History of Sexuality in America (D)   |
| HIST 219M | Asian American History * (also as AAST 201) (D)   |

|          |   |
|----------|---|
| HIST 222 | Immigration and Ethnicity in the United States (also as AAST 222) (D)       |
| HIST 224 | Modern Military History 1494-1815   |
| HIST 225 | Modern Military History 1815-Present  |
| HIST 233 | Empire! The British Imperial Experience 1558-1997 (D)                       |
| HIST 234 | History of Britain to 1485  |
| HIST 235 | History of Britain 1461-1714  |
| HIST 236 | History of Britain 1688 to Present  |
| HIST 237 | Russian Civilization (D)  |
| HIST 250 | Latin-American History I (D)  |
| HIST 251 | Latin-American History II (D)   |
| HIST 255 | African-American History, 1865 – Present (D)                                |
| HIST 266 | The United States and World Affairs   |
| HIST 275 | Law and Constitutionalism in American History                               |
| HIST 281 | Intro. to the Rabbinic Movement: History and Culture (also as JWST 230) (D) |
| HIST 282 | History of the Jewish People I (also as JWST 234) (D)                       |
| HIST 283 | History of the Jewish People II (also as JWST 235) (D)                      |
| HIST 284 | East Asian Civilization I (D)   |
| HIST 285 | East Asian Civilization II  |
| HIST 286 | The Jew and the City through the Centuries (also as JWST 275) (D)           |
| JOUR 240 | Advertising in America  |
| JWST 121 | Jewish Civilization (also as HIST 126)                                      |
| JWST 141 | American Jewish Experience (also as HIST 106)                               |
| JWST 230 | Intro. to the Rabbinic Movement: History and Culture (also as HIST 281) (D) |
| JWST 234 | History of the Jewish People I (also as HIST 282) (D)                       |
| JWST 235 | History of the Jewish People II (also as HIST 283) (D)                      |
| JWST 275 | The Jew and the City through the Centuries (also as HIST 286) (D)           |
| KNES 293 | History of Sport in America   |
| MATH 274 | History of Mathematics  |
| WMST 210 | Women in America to 1880 (also as HIST 210) (D)                             |
| WMST 211 | Women in America since 1880 (also as HIST 211) (D)                          |
| WMST 212 | Women in Western Europe, 1750 - Present (also as HIST 212) (D)              |

### Social Sciences and History

#### Behavioral and Social Sciences

**(CORE CODE: SB):**

|           |   |
|-----------|---|
| AASP 101  | Public Policy and the Black Community                               |
| AAST 200  | Introduction to Asian American Studies (also as AMST 298C) (D)      |
| AMST 207  | Contemporary American Cultures (D)                                  |
| AMST 260  | American Culture in the Information Age                             |
| AMST 298C | Introduction to Asian American Studies (also as AAST 200) (D)       |
| ANTH 240  | Introduction to Archaeology (D)                                     |
| ANTH 260  | Introduction to Sociocultural Anthropology and Linguistics (D)      |
| ANTH 262  | Culture and Environment (D)   |
| AREC 240  | Introduction to Economics and the Environment                       |
| AREC 250  | Elements of Agricultural and Resource Economics                     |
| CCJS 100  | Introduction to Criminal Justice                                    |
| CCJS 105  | Introduction to Criminology   |
| CPSP 124  | Issues in International Studies                                     |
| CPSP 227  | Science, Technology, and Society                                    |
| ECON 200  | Principles of Micro-Economics                                       |
| ECON 201  | Principles of Macro-Economics                                       |
| EDHD 230  | Human Development and Societal Institutions (D)                     |
| GEOG 100  | Introduction to Geography   |
| GEOG 130  | Developing Countries (D)  |
| GEOG 202  | The World in Cultural Perspective                                   |
| GVPT 100  | Principles of Government and Politics                               |
| GVPT 170  | American Government   |
| GVPT 200  | International Political Relations                                   |
| GVPT 250  | Introduction to International Negotiation (D)                       |
| HESP 120  | Introduction to Linguistics   |
| JOUR 150  | Introduction to Mass Communication                                  |
| KNES 287  | Sport and American Society (D)                                      |
| LGBT 200  | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies (D) |
| LING 200  | Introductory Linguistics  |

48 General Education Programs

|          |  |
|----------|--|
| PSYC 100 | Introduction to Psychology                             |
| PSYC 221 | Social Psychology                                      |
| SOCY 100 | Introduction to Sociology                              |
| SOCY 105 | Introduction to Contemporary Social Problems           |
| SOCY 227 | Introduction to the Study of Deviance                  |
| URSP 100 | Challenge of the Cities                                |
| WMST 200 | Introduction to Women’s Studies: Women and Society (D) |

CORE Interdisciplinary & Emerging Issues (CORE CODE: IE):

See CORE website at [www.ugst.umd.edu/core](http://www.ugst.umd.edu/core) for how to use the IE option and for the list of courses (added as approved). The online Schedule of Classes for fall 2006 at [www.testudo.umd.edu/ScheduleOfClasses.html](http://www.testudo.umd.edu/ScheduleOfClasses.html) will include approved IE courses.

|          |  |
|----------|--|
| GEMS 104 | Topics in Science, Technology and Society (STS)            |
| JOUR 175 | Media Literacy (D)   |
| PHIL 261 | Philosophy of the Environment                              |
| PHIL 280 | Perspectives on the Mind: Philosophy and Cognitive Science |

CORE Advanced Studies

Please refer to the program description above for Advanced Studies requirements.

CORE Capstone Option (majors only; enrollment in CORE Capstone courses will be subject to departmental guidelines) (CORE CODE: CS):

|          |   |
|----------|---|
| AMST 450 | Seminar in American Studies   |
| AMSC 420 | Mathematical Modeling (also as MATH 420)  |
| ANSC 420 | Animal Production Systems   |
| BCHM 465 | Biochemistry III  |
| BMGT 457 | Marketing Policies and Strategies   |
| BMGT 495 | Business Policies   |
| BSCI 417 | Microbial Pathogenesis  |
| BSCI 426 | Membrane Biophysics   |
| BSCI 464 | Microbial Ecology   |
| CHEM 399 | Introduction to Chemical Research (Must be taken for at least 3 credits)  |
| CHEM 491 | Advanced Organic Chemistry Laboratory   |
| CHEM 492 | Advanced Inorganic Chemistry Laboratory   |
| CMSC 412 | Operating Systems   |
| CMSC 424 | Database Design   |
| CMSC 435 | Software Engineering  |
| DANC 485 | Seminar in Dance  |
| EDSP 490 | Capstone Seminar in Special Education   |
| ENAE 482 | Aeronautical Systems Design   |
| ENAE 484 | Space Systems Design  |
| ENBE 486 | Capstone Design II (Please note that both ENBE 485 and ENBE 486 must be completed in order to satisfy CORE Capstone Requirements) |
| ENCE 466 | Design of Civil Engineering Systems   |
| ENCH 446 | Process Engineering Economics and Design II   |
| ENME 472 | Integrated Product and Process Development II   |
| ENSP 400 | Capstone in Environmental Science and Policy  |
| GEOL 394 | Research Problems in Geology  |
| HIST 309 | Proseminar in Historical Writing  |
| HIST 396 | Honors Colloquium II  |
| HIST 408 | Senior Seminar  |
| KNES 497 | Independent Studies Seminar   |
| LARC 471 | Capstone Studio   |
| MATH 420 | Mathematical Modeling (also as AMSC 420)  |
| NFSC 422 | Food Product Research and Development   |
| NFSC 491 | Issues and Problems in Dietetics  |
| NRMT 470 | Natural Resources Management  |
| PHIL 426 | Twentieth Century Analytic Philosophy   |
| PHYS 428 | Physics Capstone Research   |

CORE Human Cultural Diversity (CORE CODE: D):

Please refer to the program description above for the Diversity Requirements. In the following CORE Diversity list, courses noted with an asterisk “\*” also meet CORE Distributive Studies requirements. Diversity courses that are also approved for CORE Distributive Studies may be counted for both.

CORE Diversity Courses Recommended for Freshmen and Sophomores

|           |  |
|-----------|--|
| AASP 100  | Intro. to African American Studies*  |
| AASP 202  | Black Culture in the United States*  |
| AASP 298L | Introduction to African-American Literature* (also as ENGL 234)                          |
| AAST 200  | Introduction to Asian American Studies* (also as AMST 298C)                              |
| AAST 201  | Asian American History* (also as HIST 219M)  |
| AAST 222  | Immigration and Ethnicity in the United States* (also as HIST 222)                       |
| AAST 298L | Introduction to Asian American Literature* (also as ENGL 233)                            |
| AMST 207  | Contemporary American Culture*   |
| AMST 212  | Diversity in American Culture  |
| AMST 298C | Asian American Experience* (also as AAST 200)  |
| ANTH 220  | Introduction to Biological Anthropology*   |
| ANTH 240  | Introduction to Archaeology*   |
| ANTH 260  | Introduction to Sociocultural Anthropology and Linguistics*                              |
| ANTH 262  | Culture and Environment*   |
| ARCH 223  | History of Non-Western Architecture*   |
| ARHU 298I | American Slavery-American Freedom: The African-American Experience Through Emancipation* |
| ARHU 298L | The Creative Process in Dance*   |
| ARTH 250  | Art and Archeology of Ancient America*   |
| ARTH 275  | Art and Archeology of Africa*  |
| ARTH 290  | Art of Asia*   |
| CHIN 213  | Chinese Poetry into English: An Introduction*  |
| CMLT 235  | Intro. to Literatures of the African Diaspora* (also as ENGL 235)                        |
| CMLT 270  | Global Literalure and Social Change*   |
| CMLT 275  | World Literature by Women* (also as WMST 275)  |
| CMLT 277  | Literatures of the Americas*   |
| CMLT 280  | Film Art in a Global Society*  |
| CMLT 291  | International Perspectives on Lesbian and Gay Studies*                                   |
| CPSP 124  | Issues in International Studies  |
| DANC 138  | Introduction to Ethnic Dance (2 credits)   |
| DANC 200  | Introduction to Dance*   |
| EDHD 230  | Human Development and Societal Institutions*   |
| EDPL 201  | Education in Contemporary American Society   |
| ENGL 233  | Introduction to Asian American Literature* (also as AAST 298L)                           |
| ENGL 234  | Introduction to African-American Literature* (also as AASP 298L)                         |
| ENGL 235  | Intro. to Literatures of the African Diaspora*(also as CMLT 235)                         |
| ENGL 250  | Introduction to Literature by Women* (also as WMST 255)                                  |
| ENGL 265  | Introduction to Lesbian, Gay, and Bisexual Literatures*                                  |
| ENGL 277  | Mythologies: An Introduction*  |
| FREN 241  | Women Writers of French Expression in Translation* (also as WMST 241)                    |
| FREN 242  | Black Writers of French Expression in Translation*                                       |
| GEOG 130  | Developing Countries*  |
| GERM 281  | Women in German Literature and Society* (also as WMST 281)                               |
| GVPT 250  | Introduction to International Negotiation*   |
| HISP 200  | The Everyday & the “American” Built Environment*   |
| HIST 120  | Islamic Civilization*  |
| HIST 122  | African Civilizations to 1800*   |
| HIST 123  | Sub-Saharan Africa Since 1800 (also as AASP) *   |
| HIST 210  | Women in America to 1880* (also as WMST 210)   |

|           |   |
|-----------|---|
| HIST 211  | Women in America since 1880* (also as WMST 211)   |
| HIST 212  | Women in Western Europe, 1750 - Present* (also as WMST 212)   |
| HIST 213  | History of Sexuality in America*  |
| HIST 216  | Introduction to the Study of World Religions*   |
| HIST 219M | Asian American History* (also as AAST 201)  |
| HIST 222  | Immigration and Ethnicity in the United States* (also as AAST 222)  |
| HIST 233  | Empire! The British Imperial Experience 1558-1997*  |
| HIST 237  | Russian Civilization*   |
| HIST 250  | Latin-American History I*   |
| HIST 251  | Latin-American History II*  |
| HIST 255  | African-American History, 1865-Present*   |
| HIST 281  | Intro. to the Rabbinic Movement: History and Culture* (also as JWST 230)  |
| HIST 282  | History of the Jewish People I* (also as JWST 234)  |
| HIST 283  | History of the Jewish People II* (also as JWST 235)   |
| HIST 284  | East Asian Civilization I*  |
| HIST 286  | The Jew and the City through the Centuries* (also as JWST 275)  |
| JAPN 217  | Japanese Literature in the Age of the Samurai*  |
| JOUR 175  | Media Literacy*   |
| JWST 230  | Intro. to the Rabbinic Movement: History and Culture* (also as HIST 281)  |
| JWST 234  | History of the Jewish People I* (also as HIST 282)  |
| JWST 235  | History of the Jewish People II* (also as HIST 283)   |
| JWST 270  | Fantasy and the Supernatural in Jewish Literature* (also as HONR 2190)  |
| JWST 275  | The Jew and the City through the Centuries* (also as HIST 286)  |
| KNES 240  | Exploring Cultural Diversity Through Movement   |
| KNES 287  | Sport and American Society*   |
| LASC 234  | Issues in Latin American Studies I* (also as PORT 234 and SPAN 234)   |
| LASC 235  | Issues in Latin American Studies II* (also as PORT 235 and SPAN 235)  |
| LGBT 200  | Introduction to Lesbian, Gay, Bisexual, and Transgender Studies*  |
| LGBT 265  | Introduction to Lesbian, Gay, and Bisexual Literatures (also as ENGL 265) *   |
| LGBT 291  | International Perspectives on Lesbian and Gay Studies (also as CMLT 291) *  |
| LING 210  | Structure of American Sign Language*  |
| MUET 200  | World Popular Musics and Identity*  |
| MUET 210  | The Impact of Music on Life*  |
| MUET 220  | Selected Musical Cultures of the World*   |
| PORT 224  | Brazilian Culture (in English)*   |
| PORT 225  | The Cultures of Portuguese-Speaking Africa  |
| PORT 228A | Latin American Literatures and Society: An Interdisciplinary Approach to the Amazon Ecosystem (also as SPAN 228A) *   |
| PORT 231  | Introduction to the Literatures of the Portuguese Language*   |
| PORT 234  | Issues in Latin American Studies I* (also as LASC 234 and SPAN 234)   |
| PORT 235  | Issues in Latin American Studies II* (also as LASC 235 and SPAN 235)  |
| RUSS 282  | Contemporary Russian Culture*   |
| RUSS 298M | Building a New Reality: Russian Cinema at the End of the 20th Century*  |
| SOCY 241  | Inequality in American Society  |
| SPAN 222  | Cultural Difference in Contemporary Latin American Culture*   |
| SPAN 223  | US Latino Culture*  |
| SPAN 224  | Violence and Resistance in the Americas*  |
| SPAN 228  | A Latin American Literatures and Society: An Interdisciplinary Approach to the Amazon Ecosystem (also as PORT 228A) * |
| SPAN 234  | Issues in Latin American Studies I* (also as LASC 234 and PORT 234)   |
| SPAN 235  | Issues in Latin American Studies II* (also as LASC 235 and PORT 235)  |
| THET 195  | Gender and Performance*   |
| THET 240  | African Americans in Film and Theater*  |
| THET 293  | Black Theatre and Performance I*  |
| THET 294  | Black Theatre and Performance II*   |
| WMST 200  | Introduction to Women’s Studies: Women and Society*   |

|           |   |           |   |
|-----------|---|-----------|---|
| WMST 210  | Women in America to 1880*<br>(also as HIST 210)   | GERM 349M | Germanic Literatures in Translation:<br>Masterworks of Yiddish Literature<br>(also as JWST 375)           |
| WMST 211  | Women in America since 1880*<br>(also as HIST 211)  | GVPT 447  | Islamic Political Philosophy  |
| WMST 212  | Women in Western Europe, 1750 -<br>Present* (also as HIST 212)  | HIST 314A | Crisis and Change in the Middle East and<br>Africa: Nationalism and Nation-Building in<br>the Middle East |
| WMST 241  | Women Writers of French Expression in<br>Translation* (also as FREN 241)  | HIST 319P | Asian Americans in Washington, D.C.   |
| WMST 250  | Introduction to Women's Studies: Women,<br>Art, and Culture*  | HIST 461  | Blacks in American Life: 1865 to Present  |
| WMST 255  | Introduction to Literature by Women*<br>(also as ENGL 250)  | HIST 473  | History of the Caribbean  |
| WMST 265  | Constructions of Manhood and<br>Womanhood in the Black Community*   | HIST 474  | History of Mexico & Central America I   |
| WMST 275  | World Literature by Women*<br>(also as CMLT 275)  | HIST 475  | History of Mexico & Central America II  |
| WMST 281  | Women in German Literature and Society*<br>(also as GERM 281)   | HIST 491  | History of the Ottoman Empire   |
|           |   | HIST 493  | Victorian Women in England, France and<br>the United States (also as WMST 453)                            |
|           |   | HIST 494  | Women in Africa (formerly HIST 458B)  |
|           |   | HIST 495  | Women in Medieval Culture and Society   |
|           |   | HIST 496  | Africa Since Independence   |
|           |   | HLTH 471  | Women's Health (also as WMST 471)   |
|           |   | HLTH 487  | Adult Health and Development Program  |
|           |   | JOUR 452  | Women in the Media (also as WMST 452)   |
|           |   | JOUR 453  | News Coverage of Racial Issues  |
|           |   | KNES 492  | History of the Sportswoman in American<br>Organizations (also as WMST 492)                                |
| AASP 312  | Social and Cultural Effects of Colonization<br>and Racism   | LGBT 327  | LGBT Film and Video   |
| AASP 441  | Science, Technology, and the Black<br>Community   | LGBT 407  | Gay and Lesbian Philosophy<br>(also as PHIL 407)  |
| AASP 443  | Blacks and the Law  | LING 460  | Diversity and Unity in Human Languages  |
| AAS 398P  | Asian Americans in Washington, D.C.   | MUET 432  | Music in World Culture I  |
| AAS 498A  | Special Problems in Counseling and<br>Personnel Services: Education and<br>Counseling Issues for Asian Americans<br>(also as EDCP 498A) | MUET 433  | Music in World Culture II   |
| AGNR 401  | Agricultural Support Systems in<br>Developing Countries   | NRSC 440  | Crops, Soils, and Civilization  |
| AMST 418S | Racism and Whiteness in the U.S.  | PHIL 407  | Gay and Lesbian Philosophy<br>(also as LGBT 407)  |
| ANTH 362  | Diversity in Complex Societies  | PLSC 303  | International Crop Science  |
| AREC 365  | World Hunger, Population, and<br>Food Supplies  | PORT 322  | Survey of African Literatures of Portuguese<br>Expression (in Portuguese)                                 |
| AREC 445  | Agricultural Development in the Third World   | PORT 378  | Brazilian Cinema (in Translation)<br>(topic will vary)  |
| ARTH 375  | Ancient Art and Archaeology of Africa   | PORT 476  | Africa in Brazil  |
| ARTH 376  | Living Art of Africa  | PORT 478C | Women as Authors and Characters in<br>Brazilian Literature  |
| ARTH 384  | Art of Japan  | PSYC 336  | Psychology of Women (also as WMST 336)  |
| ARTH 385  | Art of China  | PSYC 354  | Cross-Cultural Psychology SOCY 325  |
| ARTH 485  | Chinese Painting  | SLLC 305  | Sociology of Gender (also as WMST 325)  |
| ARTH 486  | Japanese Painting   | SOCY 325  | Language, Identity, and Diversity in the U.S.   |
| ARTT 463  | Principles and Theory: African-American Art   | SOCY 325  | Sociology of Gender (also as WMST 325)  |
| ARTT 464  | Theory of Contemporary Global Art Making  | SOCY 462  | Women in the Military   |
| CCJS 370  | Race, Crime and Criminal Justice  | THET 497  | Non-Traditional Theatre   |
| CCJS 498A | Special Topics in Criminology and Criminal<br>Justice: Women and Crime  | URSP 372  | Diversity and the City  |
| CHIN 315  | Modern Chinese Literature in Translation  | WMST 320  | Women in Classical Antiquity<br>(also as CLAS 320)  |
| CHIN 316  | Traditional Chinese Values  | WMST 325  | Sociology of Gender (also as SOCY 325)  |
| CLAS 309D | Diversity and Classics  | WMST 336  | Psychology of Women (also as PSYC 336)  |
| CLAS 320  | Women in Classical Antiquity<br>(also as WMST 320)  | WMST 348  | Literary Works by Women<br>(topic will vary; also as ENGL 348*)   |
| COMM 324  | Communication and Gender  | WMST 430  | Gender Issues in Families<br>(also as FMST 430)   |
| COMM 360  | The Rhetoric of Black America   | WMST 452  | Women in the Media (also as JOUR 452)   |
| COMM 469A | Rhetoric of the Civil Rights Movement   | WMST 453  | Victorian Women in England, France and<br>the United States (also as HIST 493)                            |
| COMM 469B | Rhetoric of the Abolitionist and Suffrage<br>Movement   | WMST 471  | Women's Health (also as HLTH 471)   |
| COMM 482  | Intercultural Communication   |           |   |
| EALL 300  | The Languages of East Asia  |           |   |
| ECON 375  | Economics of Poverty and Discrimination   |           |   |
| EDCP 312  | Multi-Ethnic Peer Counseling  |           |   |
| EDCP 420  | Advanced Topics in Human Diversity<br>and Advocacy  |           |   |
| EDCP 462  | Disability in American Society  |           |   |
| EDCP 498A | Special Problems in Counseling and<br>Personnel Services: Education and<br>Counseling Issues for Asian Americans<br>(also as AAST 498A) |           |   |
| ENGL 339  | Native American Literature  |           |   |
| ENGL 348  | Literary Works by Women (Topic will vary;<br>also as WMST 348*)   |           |   |
| ENGL 349  | Asian American Literatures (Topics will vary)   |           |   |
| ENGL 360  | African, Indian, and Caribbean Writers  |           |   |
| ENGL 362  | Caribbean Literature in English   |           |   |
| ENGL 368  | Special Topics in the Literature of Africa<br>and the African Diaspora (topics will vary)   |           |   |
| FMST 381  | Poverty, Affluence, and Families  |           |   |
| FMST 430  | Gender Issues in Families<br>(also as WMST 430)   |           |   |
| FMST 498C | Cultural Competence in Human Services:<br>A Mexican Immersion Experience  |           |   |
| FREN 499B | Literature of Francophone   |           |   |
| GEOG 323  | Latin America   |           |   |
| GEOG 326  | Africa  |           |   |

## CHAPTER 6

# The Colleges and Schools

## COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

0107 Symons Hall, 301-405-7761  
E-mail: eweiss@deans.umd.edu  
[www.agnr.umd.edu](http://www.agnr.umd.edu)

Dean: Cheng-i Wei  
Associate Dean: Leon H. Slaughter  
Assistant Dean: John A. Doerr

The College of Agriculture and Natural Resources offers a variety of academic programs that apply science, management, design, and engineering to improve the world in which we live and work. Feeding the world population, developing scientifically-based land use practices and policies, understanding animal and plant biology, improving nutrition and its effects on human health, and profitably managing farms and agribusinesses in harmony with ecosystems are all vital concerns of the College. Integrating the use and protection of natural resources in the production of food and nursery crops is a challenge facing students.

Each student in the College is assigned a faculty advisor to assist in selecting courses to meet the individual needs of our diverse student body. In addition to course work, undergraduates have opportunities to work closely with faculty in state-of-the-art facilities including new biological resources engineering, animal sciences, veterinary medicine, and plant sciences buildings. The College also serves as the academic home of the Maryland Campus of the Virginia-Maryland College of Veterinary Medicine. Nearby resources such as the U.S. Department of Agriculture's Beltsville Agricultural National Research Center, the National Institutes of Health, the Food and Drug Administration, the Smithsonian Institution and the National Zoo, Maryland's Departments of Agriculture and Natural Resources, and the Patuxent Wildlife Research Center enhance teaching, research, internship, and career opportunities for students. Field study courses offered in Brazil, Belize, Egypt, England, and Costa Rica, and study-abroad programs such as those in Russia and Angers, France expose students to other cultures and environments. Learning opportunities are also strengthened through student involvement in such co-curricular activities as the College Honors Program, career programs, leadership workshops, and student clubs.

Graduates are employed in a variety of professions as dietitians, food scientists, landscape architects, engineers, natural resource managers, environmental consultants, land use planners, agribusiness managers, stock and commodity brokers, or lawyers specializing in environmental issues. Others work at government and industry research laboratories, biotechnology and biomedical firms, and in hospitals, fish and wildlife programs, the Peace Corps, public health departments, and large food-production operations. Many graduates pursue advanced degrees in veterinary medicine, law, medicine, physical therapy, or graduate school.

Departments in the College of Agriculture and Natural Resources offer the following programs of study:

**Agricultural and Resource Economics**—Business Management; Agricultural Science; Environmental and Resource Policy; Food Production; International Agriculture; and Political Process.

**Animal Sciences**—Animal Care and Management; Equine Studies; Laboratory Animal Care; Science/Preprofessional; and Animal Biotechnology

**Combined Agriculture/Veterinary Medicine**

**Biological Resources Engineering**—Water Resources; Bioenvironmental Engineering; Aquacultural Engineering; and Biomedical Engineering.

**Environmental Science and Policy**—Environment & Agriculture, Environmental Economics, Environmental Restoration, Soil, Water, & Land Resources, and Wildlife Resources & Conservation.

**Natural Resource Sciences**—Conservation of Soil, Water and Environment, Horticulture and Crop Production, Landscape Management, Plant Sciences, Turf and Golf Course Management, and Urban Forestry.

**General Agricultural Sciences**

**Landscape Architecture**

**Natural Resources Management**—Environmental Education/Park Management; Land and Water Resource Management; and Plant and Wildlife Resource Management.

**Nutrition and Food Science**—Dietetics; Food Science; and Nutritional Science.

## Advantage of Location and Facilities

Educational opportunities in the College of Agriculture and Natural Resources are enhanced by the proximity of several research units of the federal government. Teaching and research activities in the College are conducted with the cooperation of scientists and professional people in government positions. Of particular interest are the National Agricultural Research Center at Beltsville, the National Agricultural Library, the National Arboretum, and the Food and Drug Administration.

Instruction in the basic biological and physical sciences, social sciences, landscape design, and engineering principles is conducted in well-designed classrooms and laboratories. The application of basic principles to practical situations is demonstrated for the student in numerous ways. In addition to on-campus facilities, several operating education and research facilities are located throughout Maryland. Horticultural and agronomic crops, turf, beef, dairy cattle, and poultry are maintained under practical and research conditions also used for environmental studies.

## Requirements for Admission

It is recommended that students entering the College of Agriculture and Natural Resources have completed a high school preparatory course that includes: English, 4 units; mathematics, 3 units; biological and physical sciences, 3 units; and history or social sciences, 2 units. Four units of mathematics should be elected by students who plan to major in biological resources engineering. The Landscape Architecture major is a limited enrollment program (LEP). See chapter 1 for general limited-enrollment program admission policies.

## Degree Requirements

Students graduating from the College must complete at least 120 credits with a grade point average of 2.0 in all courses applicable toward the degree. Requirements of the major and supporting areas are listed under individual program headings in chapter 7.

## Advising

Each student in the College of Agriculture and Natural Resources is assigned to a faculty advisor. Advisors normally work with a limited number of students and are able to give individual guidance. Students entering the freshman year with a definite choice of curriculum are assigned to departmental advisors for counsel and planning of all academic programs. Students who have not selected a definite curriculum are assigned to a general advisor who assists with the choice of electives and acquaints students with opportunities in the curricula in the College of Agriculture and Natural Resources and in other units of the university.

## Financial Assistance

A number of scholarships are available for students enrolled in the College of Agriculture and Natural Resources. These include awards by the Agricultural Development Fund, Arthur M. Ahalt Memorial Scholarship, Attorney General's Scholarship, Beltsville Garden Club Scholarship, Bruce and Donna Berlage Scholarship, Chester F. Bletch Fund, Bowie-Crofton Garden Club Scholarship, Frank D. Brown Memorial Scholarship, Jonas and Joan Cash Student Award, Chapel Valley Landscape Company Honorary Scholarship, George Earle Cook, Jr. Scholarship Fund, Ernest T. Cullen Memorial Scholarship, Jaime Dannemann Scholarship, Richard F. Davis Memorial Award, Jerry V. DeBarthe Memorial Fund, William R. DeLauder Fund, Mylo S. Downey Memorial Scholarship, Robert Facchina/Johanna Foods Scholarship, James R. Ferguson Memorial Scholarship, Kenneth S. Fowler Memorial Fund, Thomas A. Fretz Agriculture and Natural Resources Scholarship, H. Palmer Hopkins Scholarship, Donald Leishear International Travel Scholarship, Goddard Memorial Scholarship, Manasses J. and Susanna Grove Memorial Scholarship, Maryland Greenhouse Growers Association Scholarship, Maryland Nurserymen's Association Scholarships, John and Marjorie Moore International Agriculture and Natural Resources Student Travel Fund, James and Dessie Moxley Scholarship, Paul R. Poffenberger Scholarship Fund, Jennifer Russo Memorial Scholarship, the Ross and Pauline Smith Fund, J. Herbert Snyder Scholarship, Southern States Cooperative, Inc., Hiran I. Stone Memorial Scholarship, T. B. Symons Memorial Scholarship, the A.F. Vierheller Award Fund in Horticulture, Siegfried Weisberger Jr. Scholarship Fund, Theodore B. and Georgianna Miles Weiss Memorial Fund, and the Winslow Foundation Scholarship.

The College is privileged to offer additional support in the form of interest-free loans through the Catherine Brinkley Loan Fund which is available to students who are residents of Maryland and progressing in programs within the College of Agriculture and Natural Resources.

## Honors

Students may apply for admission to the College Honors program after completing 56 credits with a minimum 3.2 GPA in a program within the College. Honors students work with a faculty mentor and must take at least 12 credits of honors courses including a senior thesis. Interested students should contact their faculty advisor.

## Student Organizations

Students find opportunity for varied expression and growth in the several voluntary organizations sponsored by the College of Agriculture and Natural Resources. These organizations are AGNR Student Ambassadors, AGNR Student Council, Alpha Zeta, Agribusiness Club, Agronomy Club, Alpha Gamma Rho, Animal Husbandry Club, ASAE, the Society for Engineering in Agricultural, Food and Biological Systems, College Park Environmental Group, Collegiate 4-H, Collegiate FFA, Food and Nutrition Club, Horticulture Club, Landscape Architecture Student Association, INAG Club, Natural Resources Management Society, Animal Sciences Graduate Association/Poultry Science Club, Sigma Alpha, Soil and Water Conservation Society UMCP Student Chapter, Symbiosis, Equestrian Club, UM Food Technology Club, and Veterinary Science Club.

## Research and Service Units

### Maryland Agricultural Experiment Station

The Maryland Agricultural Experiment Station (MAES) supports research conducted primarily by 120 faculty scientists located within the College of Agriculture and Natural Resources. Faculty use state-of-the-art facilities such as a new Research Greenhouse Complex and Environmental Simulator, as well as 10 off-campus research locations, for research in the science, business, policy, and practice of agriculture. MAES supports research that benefits consumers and producers alike; for example, our significant focus

on the environment protects valuable natural resources such as the Chesapeake Bay. Undergraduate students also benefit from mentoring by MAES-supported faculty and instructional use of MAES facilities statewide.

### Cooperative Extension Service

The Maryland Cooperative Extension Service (MCES) educates citizens in the application of practical, research-based knowledge to critical issues in agricultural and agribusiness including aquaculture; natural resources and the environment; human development, nutrition, diet, and health; youth development and 4-H; and family and community leadership. The statewide program includes more than 180 faculty and support staff located in 23 counties, the City of Baltimore, four regional centers, and the University of Maryland's College Park and Eastern Shore campuses. In addition, more than 15,000 volunteers and citizens in Maryland give generously of their time and energy.

### Virginia-Maryland Regional College of Veterinary Medicine, Maryland Campus

College of Agriculture and Natural Resources  
1202 Gudelsky Veterinary Center, 301-314-6830  
[www.vetmed.vt.edu](http://www.vetmed.vt.edu)

The Virginia-Maryland Regional College of Veterinary Medicine is operated by the University of Maryland and the Virginia Polytechnic Institute and State University. Each year, 30 Maryland and 50 Virginia residents comprise the entering class of a four-year program leading to a Doctor of Veterinary Medicine (DVM).

The first three years are given at Virginia Polytechnic Institute and State University in Blacksburg, Virginia. The final year of instruction is given at several locations, including the University of Maryland, College Park.

A student desiring admission to the college must complete the pre-veterinary requirements and apply for admission to the professional curriculum. Admission to this program is competitive, and open to all Maryland residents. All Maryland residents' applications are processed at the College of Veterinary Medicine, Maryland Campus, University of Maryland, College Park.

### Institute of Applied Agriculture (Two-Year Program)

E-mail: [iaa@umail.umd.edu](mailto:iaa@umail.umd.edu)  
[www.iaa.umd.edu](http://www.iaa.umd.edu)

The Institute of Applied Agriculture (IAA) awards academic certificates in Equine Business Management, General Ornamental Horticulture, Golf Course Management, Landscape Management, and Turfgrass Management. As a two-year program, the IAA has a separate admission policy. Upon completion of the program, students are welcome to transfer to the University of Maryland, College Park; University of Maryland University College; and other schools.

For more information about the IAA, its admissions procedures, and requirements, contact the Institute of Applied Agriculture, 2123 Jull Hall, University of Maryland, College Park, MD 20742-2525. Phone: 301-405-4686. Information is also available on the Institute's home page and via E-mail (see addresses above).

Course Code: AGNR

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## SCHOOL OF ARCHITECTURE, PLANNING, AND PRESERVATION (ARCH)

Architecture Building, 301-405-8000  
[www.arch.umd.edu](http://www.arch.umd.edu)

Dean: Garth Rockcastle  
Associate Dean: Stephen F. Sachs  
Associate Dean: John W. Maudlin-Jeronimo  
Associate Dean: Lee W. Waldrep, Ph.D.  
Professors: Bechhoefer†, Bennett, Bowden, Du Puy, Etlin†, Francescato, Lewis, Schumacher, Vann  
Associate Professors: Bell, Bovill, Elsenbach, Gardner, Gournay, Kelly  
Assistant Professors: Ambrose, Oakley, Wortham  
Lecturer: McInturff  
Professor Emeritus: Fogle, Hill, Schlesinger  
†Distinguished University Professor



## 52 School of Architecture, Planning, and Preservation

The School of Architecture, Planning, and Preservation offers a four-year undergraduate program leading to the Bachelor of Science degree in architecture, and a graduate program leading to the professional degree of Master of Architecture. The undergraduate major in architecture is designed to minimize the time required to complete the curriculum leading to the professional degree.

Students receive rigorous and comprehensive instruction from a faculty whose members are active in professional practice or research. Many faculty members have distinguished themselves across the professional spectrum and represent different approaches to architectural design. Their individual areas of expertise include architectural design and theory, history, architectural archaeology, technology, urban design and planning, and historic preservation. Visiting critics, lecturers, and the Kea Distinguished Professor augment the faculty; together they provide students with the requisite exposure to contemporary realities of architectural design.

The B.S. degree in architecture will qualify graduates to pursue a career in any of a number of fields, such as construction, real estate development, public administration, or historic preservation, or to continue in graduate work in professional fields such as architecture, urban planning, historic preservation, landscape architecture, or law.

### Recruitment

Associate Dean: Lee W. Waldrep, Ph.D.  
1298 Architecture Building, 301-405-8000  
[www.arch.umd.edu](http://www.arch.umd.edu)

The School's Associate Dean serves as a resource and contact person for prospective students interested in the B.S. in Architecture degree and also serves as a liaison to the Office of Undergraduate Admissions.

### Admission to Architecture

Architecture is a Limited Enrollment Program (LEP). See the Admissions section in chapter 1 for general LEP admission policies.

**Freshman Admission.** Students with the most competitive records from high school will gain direct admission to the School of Architecture, Planning and Preservation from high school, as allowed by space considerations with the School. Because space may be limited before all interested freshmen are admitted to the program, early application is strongly encouraged. Freshmen admitted to the program will have access to the necessary advising through their initial semesters to help them determine if architecture is an appropriate major for their interests and abilities.

Freshmen who are admitted to architecture will be subject to a performance review at the end of their third semester, typically 45 credits. To meet the provisions of the review, these students must demonstrate their ability to complete the following prior to enrollment of the studio sequence:

- Fundamental Studies CORE requirement
- Distributive Studies CORE requirement
- ARCH 170, 225, 226, and 242 with a grade of 3.0 or higher in each course
- MATH 220, PHYS 121 and one of the courses\*\* listed below with a minimum grade of 2.0 in each and an overall minimum grade point average of 2.67 in all three

**\*\* Students must take one of the courses below to complete the Mathematics and the Sciences Distributive Studies CORE requirement:**

- BSCI 205 (3) Environmental Science (LS)
- GEOG 140 (3) Coastal Environments (PS)
- GEOL 120 (3) Environmental Geology (PS)
- GEOL 123/METO 123/GEOG 123 (3) Causes and Implications of Global Change (PS)
- PHYS 122 (4) Fundamentals of Physics II (PL)

Students may be enrolled in ARCH 226 and completing their distributive studies contemporaneous with the review process during their fourth semester. A minimum cumulative GPA of 2.00 in all college level coursework is also required. In addition, the review will include an assessment of two letters of recommendations, transcripts, an essay, and a portfolio, the nature of which is specified by the School. Please contact the School of Architecture, Planning, and Preservation at 301-405-8000 for portfolio requirements and deadlines. You may also visit the School website at [www.arch.umd.edu](http://www.arch.umd.edu).

*Students are admitted to the School during the Fall semester only.*

**Transfer Admission Requirements.** New transfer students, as well as students already enrolled on campus who wish to change majors to architecture, will undergo a transfer admission process. To meet the provisions of the process, these students must demonstrate their ability to complete the following prior to enrollment in the studio sequence (Junior year):

- Fundamental Studies CORE requirement
- Distributive Studies CORE requirement
- ARCH 170, 225, 226, and 242 with a grade of 3.0 or higher in each course
- MATH 220, PHYS 121 and one of the courses\*\* listed below with a minimum grade of 2.0 in each and an overall minimum grade point average of 2.67 in all three

**\*\* Students must take one of the courses below to complete the Mathematics and the Sciences Distributive Studies CORE requirement:**

- BSCI 205 (3) Environmental Science (LS)
- GEOG 140 (3) Coastal Environments (PS)
- GEOL 120 (3) Environmental Geology (PS)
- GEOL 123/METO 123/GEOG 123 (3) Causes and Implications of Global Change (PS)
- PHYS 122 (4) Fundamentals of Physics II (PL)

Students may be enrolled in ARCH 226 and completing their distributive studies contemporaneous with the review process during their fourth semester. A minimum cumulative GPA of 3.00 or above in all college level coursework is also required. In addition, the review will include an assessment of two letters of recommendations, transcripts, an essay, and a portfolio, the nature of which is specified by the School. Please contact the School of Architecture, Planning, and Preservation at 301-405-6284 for portfolio requirements and deadlines. You may also visit the School website at [www.arch.umd.edu](http://www.arch.umd.edu). Note: just because students meet the above requirements, does not guarantee admission into this LEP (Limited Enrollment Program).

*Students are admitted to the School during the Fall semester only.*

**Appeals.** Students who are denied admission and who feel that they have extenuating circumstances may appeal in writing to the Office of Undergraduate Admissions, Mitchell Building. Students denied admission at the 45 credit review may appeal directly to the School of Architecture, Planning and Preservation. For further information, contact the Counselor for Limited Enrollment Programs at 301-314-8385.

### Curriculum Requirements

In the first two years of college, directly admitted students and those seeking to transfer into the School of Architecture, Planning and Preservation should adhere to the following curriculum:

|  | Credit Hours |
|--|--------------|
| General Education (CORE) and Electives .....                                   | 30           |
| UNIV 100 The Students in the University.....                                   | 1            |
| ENGL 101 Introduction to Writing (CORE) .....                                  | 3            |
| MATH 220 Elementary Calculus I (CORE) .....                                    | 3            |
| ARCH 170 Introduction to the Built Environment (CORE) .....                    | 3            |
| PHYS 121 Fundamentals of Physics I (CORE) .....                                | 4            |
| ARCH 225 History of World Architecture I .....                                 | 3            |
| ARCH 226 History of World Architecture II .....                                | 3            |
| ARCH 242 Drawing I .....   | 3            |
| One of the following (CORE): .....   | 3            |
| • BSCI 205 (3) Environmental Science (LS)                                      |              |
| • GEOG 140 (3) Coastal Environments (PS)                                       |              |
| • GEOL 120 (3) Environmental Geology (PS)                                      |              |
| • GEOL 123/METO 123/GEOG 123 (3) Causes and Implications of Global Change (PS) |              |
| • PHYS 122 (4) Fundamentals of Physics II (PL)                                 |              |
| <b>Total Credits .....</b>   | <b>56</b>    |

If admitted after completing 56 credits, students are expected to complete the following requirements for a total of 120 credits:

|  | Credit Hours |
|--|--------------|
| <b>Third Year</b>                                |              |
| ARCH 227 History of World Architecture III ..... | 3            |
| ARCH 400 Architecture Studio I* .....            | 6            |
| ARCH 410 Architectural Technology I .....        | 4            |
| ARCH 401 Architecture Studio II .....            | 6            |
| ARCH 411 Architectural Technology II .....       | 4            |
| ENGL 391 Advanced Composition .....              | 3            |

|                          |           |
|--------------------------|-----------|
| Directed Electives ..... | 3         |
| Core Requirements .....  | 3         |
| <b>Total .....</b>       | <b>32</b> |

**Fourth Year**

|   |            |
|---|------------|
| ARCH 402 Architecture Studio III .....            | 6          |
| ARCH 412 Architectural Technology III .....       | 4          |
| Directed History of Architecture Elective** ..... | 3          |
| ARCH 403 Architecture Studio IV .....             | 6          |
| ARCH 413 Architectural Technology IV .....        | 4          |
| Directed Electives .....                          | 6          |
| CORE Requirements .....                           | 6          |
| <b>Total .....</b>                                | <b>29</b>  |
| <b>Total Credits .....</b>                        | <b>120</b> |

\*Courses are to be taken in sequence as indicated by Roman numerals in course titles.

\*\*Directed Architecture history courses: ARCH 420, 422, 423, 432, 433, 434, and 436

**Special Resources and Opportunities**

The school is housed in a modern, air-conditioned building providing design workstations for each student, a large auditorium, and seminar and classroom facilities. A well-equipped woodworking and model shop, and computer graphics facilities are also provided. The Architecture Library, one of the finest in the nation, offers convenient access to a current circulating collection of more than 24,000 volumes, 6,000 periodicals, and an extensive selection of reference materials. Rare books and special acquisitions include a collection relating to international expositions and the 11,000-volume National Trust for Historic Preservation Library. The Elizabeth D. Alley Visual Resources Collection includes a reserve collection of 320,000 slides on architecture, landscape architecture, urban planning, architectural science, and technology as well as audio-visual equipment for classroom and studio use.

Summer programs include travel to Rome, Paris, Turkey, Great Britain, and other countries. Students may earn direct credit doing hands-on restoration work and by attending lectures by visiting architects, preservationists, and scholars.

Course Code: ARCH

**COLLEGE OF ARTS AND HUMANITIES (ARHU)**

1102 Francis Scott Key Hall, 301-405-2088  
[www.arhu.umd.edu](http://www.arhu.umd.edu)

Professor and Dean: James Harris  
 Office of Student Affairs: 301-405-2110  
 Academic Advisors: 301-405-2108  
[www.arhu.umd.edu/studentresources/osa](http://www.arhu.umd.edu/studentresources/osa)

The College of Arts and Humanities embraces a heterogeneous group of disciplines, all of which value the development of critical thinking, fluent expression in writing and speech, sensitivity to ethical and aesthetic standards, and a complex understanding of history and culture. Departments and programs in Arts and Humanities, while they have strong individual identities, are also involved in interdisciplinary studies. Thus students will find, for example, courses in the Department of English that approach literature from political perspectives, courses in the Department of History that rely on feminist perspectives, courses in the Department of Art History and Archaeology that study African cultures, and so on.

Further examples of the special opportunities available to students in this richly variegated college include an exceptional slide library in Art History and Archaeology, the English Department's computer-based writing laboratory, an AT&T Foreign Language Classroom, a junior-year-abroad program in Nice, France, a year-abroad program in Sheffield, England, and Honors programs in most departments. In addition, the education vistas open to students in Dance, Music, and Theatre have been enhanced enormously by the recent opening of the Clarice Smith Center for the Performing Arts, which now houses those three departments.

**Recruitment**

1120L Francis Scott Key Hall, 301-405-2096  
[www.ARHU.umd.edu/admissions](http://www.ARHU.umd.edu/admissions)  
 Admissions Coordinator: J. Darius Greene

The College's Admissions Coordinator serves as a resource and contact person for prospective students interested in Arts and Humanities degrees and also serves as a liaison to the Office of Undergraduate Admissions.

**Entrance Requirements**

Students wishing to major in one of the creative or performing arts are encouraged to seek training in the skills associated with such an area prior to matriculation. Students applying for entrance to these programs may be required to audition, present slides, or submit a portfolio as a part of the admission requirements.

**Graduation Requirements**

The following College requirements apply only to students earning Bachelor of Arts degrees from the College of Arts and Humanities. These requirements are in addition to or in fulfillment of campus and departmental requirements. For information concerning the Bachelor of Music in the School of Music, students should consult a Music advisor.

Students who double major in ARHU and another college on campus **must** complete the College requirements in ARHU of foreign language to the intermediate level, and 45 hours of upper-level credit.

All Arts and Humanities freshmen (excluding students in College Park Scholars, Honors Humanities, or University Honors) must take UNIV 101, The Student in the University and Introduction to Computer Resources, during their first semester on campus.

**Distribution**

A minimum of 45 of the total of 120 semester hours must be upper-level work (i.e., courses numbered 300-499).

**Foreign Language**

Language proficiency may be demonstrated in one of several ways:

- Successful completion of level 4 in one language in high school. **Students must provide a high school transcript to verify exemption.**
- Successful completion of an intermediate-level college foreign language course designed by the department.
- Successful completion of a language placement examination in one of the campus language departments offering such examinations.

Students who have native proficiency in a language other than English should see an advisor in the ARHU Office of Student Affairs, or call 301-405-2108.

**Changes in the foreign language requirement are under review. Students should consult the ARHU Office of Student Affairs for updated information.**

**Major Requirements**

All students must complete a program of study consisting of a major (a field of concentration) and usually supporting courses as specified by one of the academic units of the College. No program of study shall require in excess of 60 semester hours. Students should consult the unit in which they will major for specific details; certain units have mandatory advising.

A major shall consist, in addition to the lower-division departmental prerequisites, of 24 to 40 hours, at least 12 of which must be in courses numbered 300 or 400 and at least 12 of which must be taken at the University of Maryland, College Park.

A major program usually requires a secondary field of concentration (supporting courses). The nature and number of these courses are determined by the major department.

No grade lower than C may be used to fulfill major or supporting course requirements. No course for the major or support module may be taken Pass-Fail.

**Advising**

Freshmen and new transfer students have advisors in the Arts and Humanities College Office of Student Affairs (301-405-2108) who assist them in the selection of courses. Students **must** see the departmental advisor for the major. All first-year students (both freshmen and transfers) and seniors who have completed 90-105 credits have mandatory advising in both the College and the department. For further information about advising, students should call the ARHU Office of Student Affairs, 301-405-2108.

## 54 College of Arts and Humanities

### Degrees and Majors

The College of Arts and Humanities offers the degree of Bachelor of Arts in the following fields of study:

- American Studies
- Art
- Art History and Archeology
- Chinese Language and Literature
- Classics
  - Classical Humanities
  - Greek
  - Latin
  - Latin and Greek
- Communication
- Dance
- English Language and Literature
- French Language and Literature
- Germanic Studies
- History
- Italian Language and Literature
- Japanese Language and Literature
- Jewish Studies
- Linguistics
- Music
- Philosophy
- Romance Languages
- Russian Language and Culture
- Russian Area Studies
- Spanish and Portuguese Languages and Literatures
- Theatre
- Women's Studies

The College also offers the degree of Bachelor of Music; certificate programs in Women's Studies, East Asian Studies, and Latin American Studies; and a program in Comparative Literature.

### Internships

Several departments within Arts and Humanities have well-established internship options. For more information on internships taken for academic credit, students should contact their departmental academic advisor. Typically students must be in good academic standing and in their junior or senior year to complete a for-credit internship. They usually complete an application and attach a current academic transcript, and the experience usually lasts for one semester. In addition to the site experience, students write an analysis of the experience in conjunction with a faculty member of a class. Internships in literacy and in the Maryland General Assembly are available through the English Department 301-405-3827. For assistance in locating an internship site, visit the Career Center at 3100 Hornbake Library, South Wing or do a search on the web site [www.careercenter.umd.edu](http://www.careercenter.umd.edu).

### Certification of High School Teachers

A student who wishes certification as a high school teacher in a subject represented in this College must consult the College of Education in the second semester of the sophomore year. Application for admission to the Teacher Education program is made at the time that the first courses in Education are taken. Enrollment in the College of Education is limited.

### Honors

#### Honors Programs

Most departments in the College of Arts and Humanities offer departmental Honors Programs (DHP). DHPs are upper-division programs that provide students with a transition from the two-year University Honors and College Park Scholars programs to individual academic units. Students enrolled in departmental Honors work independently with faculty members in subjects of special interest, develop and deepen their research skills, and in the process earn an even stronger degree. Students must have a cumulative grade point average of at least 3.0 to be admitted. For further information about individual Departmental Honors Programs and policies, consult with departmental advisors.

#### Honors Humanities

1103 Wicomico Hall, 301-405-6992

[www.honorshumanities.umd.edu](http://www.honorshumanities.umd.edu)

Director: Dr. Tanya Jung

Entering freshmen participate by invitation in Honors Humanities, a two-year living/learning program. Honors Humanities is for academically talented students who have intellectual ambitions in the humanities and arts or a desire to develop their education on a liberal arts foundation. The program provides students with stimulating seminars, exciting academic friendships, a lively home base in Easton Hall, and opportunities to take advantage of the intellectual, cultural, and artistic riches of the region around Washington, D.C. Upon successful completion of the program, students earn a citation in Honors Humanities, and this citation is entered upon their university transcripts.

#### Phi Beta Kappa

Consult the description of Phi Beta Kappa in chapter 4.

### College Park Scholars

CPS in the Arts: Professor Peter Beicken, Dr. David Solomon

CPS in American Cultures: Professor Sangeeta Ray

[www.scholars.umd.edu](http://www.scholars.umd.edu)

The College of Arts and Humanities co-sponsors two cross-disciplinary College Park Scholars programs in Arts and American Cultures. These two-year programs provide exciting living-learning environments in specially-equipped residence halls for incoming freshmen. Students with strong interests in these areas meet in weekly colloquia with faculty, in the Arts program with student teachers as well (usually alumni of the program), to pursue creative and intellectual endeavors. Field trips, invited speakers, and a yearly staged Spring Fair (Arts) stimulate creativity and the sense of togetherness while forming a community of learners and teachers. American Cultures focuses on the continent allowing students to think comparatively. Students present on various aspects of culture and history with a culminating festival in the Spring semester. The Scholars program gives students the opportunity to study with their peers while being in close contact with their faculty advisors and experiencing a small college environment that provides a special intellectual, creative and social home for 150 students (freshmen and sophomores) in each program.

### Jiménez-Porter Writers' House

0111 Dorchester Hall, 301-405-0671

[www.writershouse.umd.edu](http://www.writershouse.umd.edu)

Director: Johnna Schmidt

The Jiménez-Porter Writers' House is a two-year living and learning program open to students from all majors and across all four years of undergraduate study. Located in Dorchester Hall, the Writers' House creates a campus-wide literary center to study creative writing in its cross-cultural and multilingual dimensions. Participants live in a close community of students who share an interest in creating stories, poems, plays, and imaginative non-fiction. Students work with visiting writers, publish a literary magazine, attend special readings and colloquia, produce an annual literary festival, and receive notation upon successful completion of the program. Class sizes are small, and include one-on-one faculty advising sessions. Admission to the Writers' House is competitive, with only forty to fifty students living and writing together each year. Applications can be obtained by contacting the director, or by visiting [www.writershouse.umd.edu](http://www.writershouse.umd.edu). Final deadline for admission every year is March 1.

### Research and Service Units

#### Academic Computing Services

1116 Francis Scott Key Hall, 301-405-2104

[www.ARHU.umd.edu/technology](http://www.ARHU.umd.edu/technology)

Director: Kathleen R. Cavanaugh

Academic Computing Services (ACS) supports the use of technology by faculty, staff, and students in the College of Arts and Humanities. ACS maintains a variety of laboratories and instructional facilities to support the needs of the College. These include computer-equipped classrooms such as the Language Technology Classroom and the English New Media Classroom as well as facilities, such as the lab in the St. Mary's Hall, designed for individual student use.

**The Art Gallery**

1202 Art-Sociology Building, 301-405-2763  
[www.artgallery.umd.edu](http://www.artgallery.umd.edu)  
Director: Scott D. Habes

The Art Gallery presents a series of exhibitions each year of historic and contemporary art in a variety of media and subject matter. Opportunities for museum training and arts management experience are available to students through intern and work-study positions.

**The Center for Studies in Nineteenth-Century Music**

2101 Skinner Building, 301-405-7780  
Director: H. Robert Cohen  
Research Coordinator: Richard Kitson

The Center for Studies in Nineteenth-Century Music promotes research focusing on nineteenth-century music and musical life. The center's programs are designed to facilitate the study, collection, editing, indexing, and publication of documentary source materials.

**The Center for Renaissance and Baroque Studies**

0139 Taliaferro Hall, 301-405-6830  
[www.crbs.umd.edu](http://www.crbs.umd.edu)  
Founding Director: S. Schoenbaum (1927-96)  
Director: Adele Seeff  
Associate Director: Karen Nelson

The Center for Renaissance and Baroque Studies promotes teaching and research in the Renaissance and Baroque Periods in all disciplines of the arts and humanities. The Center sponsors a vast array of programs, including annual interdisciplinary symposia, special lectures and performances, conferences, summer institutes, and a volume series of symposia proceedings published by the University of Delaware Press in conjunction with Associated University Presses. As part of its mission to support undergraduate education, the Center offers a citation in Renaissance studies and coordinates a series of interdisciplinary arts and humanities courses. Through its CAST program (Center Alliance for School Teachers), the Center provides professional development to secondary school arts and humanities teachers throughout the state of Maryland and an after-school drama program for at-risk high school students. The planning committee for Attending to Early Modern Women—one of the Center's standing committees—organizes and coordinates an international symposium on the university's campus every three years.

**David C. Driskell Center for the Study of the African Diaspora**

2114 Tawes Fine Arts Building ZIP: 1220  
301-314-2615  
[driskellcenter@umail.umd.edu](mailto:driskellcenter@umail.umd.edu)  
[www.driskellcenter.umd.edu](http://www.driskellcenter.umd.edu)  
Executive Director: Robert E. Steele

Established in 2001 through the generous gifts of David C. Driskell, Distinguished University Professor Emeritus of Art, and a community of artists, scholars, and friends associated with the University of Maryland, the David C. Driskell Center for the Study of the African Diaspora is a venue for the exploration of the presence of Africa and the African diaspora in modern culture. Through performances and exhibitions, conferences and symposia, grant and fellowship competitions, and outreach activities, the Driskell Center seeks to nurture research and creativity of the highest caliber, provide training for scholars and students on issues and methodologies in the study of the African diaspora, and encourage the growth of future generations of artists and researchers who can bring new insights to the phenomenon of the African diaspora and its influence.

The Driskell Center is a unit of the College of Arts and Humanities. It assumes several programs formerly administered by the Committee on Africa and the Americas, a joint venture between Arts and Humanities and the College of Behavioral and Social Sciences.

**Consortium on Race, Gender, and Ethnicity (CRGE)**

2103 Tawes-Fine Arts Bldg, 301-405-2931  
[www.crge.umd.edu](http://www.crge.umd.edu)  
Director: Bonnie Thornton Dill  
Assistant Director: Amy E. McLaughlin

The Consortium is an association of academic units and individual faculty on the University of Maryland Campus whose mission is to promote, advance and conduct, research, scholarship and faculty development that examines the intersections of race, gender and ethnicity with other dimensions of difference. The Consortium also offers programs and opportunities aimed at student development including fellowships and colloquia.

**Language House**

0107 St. Mary's Hall, 301-405-6996  
[www.umd.edu/langhouse](http://www.umd.edu/langhouse)  
Coordinator: Phoenix Liu

The Language House is a campus residence for students wishing to immerse themselves in the study of a foreign language and culture. A total of over 100 students of Chinese, French, German, Hebrew, Italian, Japanese, Russian, and Spanish share 19 apartments. A live-in graduate mentor leads each language cluster. The goal of language immersion is achieved through activities organized by the students and mentors, a computer-based Language Learning Center, an audio-visual room, an international cafe, and foreign television programs received via satellite.

**Language Media Services**

1204 Jiménez Hall, 301-405-6927  
Facsimile: 301-314-9752  
Email: [jb434@umail.umd.edu](mailto:jb434@umail.umd.edu)  
[cw188@umail.umd.edu](mailto:cw188@umail.umd.edu)  
[www.umd.edu/lms](http://www.umd.edu/lms)  
Janel Brennan Tillman, Coordinator of Foreign Language Instructional Technology

Serving the technology needs of the foreign language programs in the College of Arts and Humanities, Language Media Services provides for the audiovisual and computing needs of students, faculty and staff. The LMS collection consists of instructional materials as well as audio and video equipment. The unit supports a computing facility and audio lab, and also provides workshops and training for faculty in regards to the integration of technology into their instruction.

**FOLA**

1109 Jiménez Hall, 301-405-4046  
[www.umd.edu/foia](http://www.umd.edu/foia)  
Coordinator: Naime Yaramanoglu

The FOLA (Foreign Language) Program enables qualified students with high motivation to acquire a speaking knowledge of a number of foreign languages not offered in regular campus programs. While instruction is basically self-directed, students meet regularly with a native-speaking tutor for practice sessions to reinforce what has already been covered through the individual use of books and audio tapes. Final examinations are administered by outside examiners who are specialists in their fields.

Course Code: ARHU

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**COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES (BSOS)**

2148 Tydings Hall, 301-405-1697  
[bsosque@bsos.umd.edu](mailto:bsosque@bsos.umd.edu) (for BSOS advising questions)  
[www.bsos.umd.edu/deans.html](http://www.bsos.umd.edu/deans.html)  
[www.bsos/umd.edu/advising\\_homepage.html](http://www.bsos/umd.edu/advising_homepage.html)

Professor and Dean: Edward B. Montgomery  
Senior Associate Dean: Robert Schwab  
Assistant Dean: Katherine Pedro Beardsley  
Assistant Dean: Cynthia Hale  
BSOS Advising Center: 301-405-1697

The College of Behavioral and Social Sciences is comprised of a diverse group of disciplines and fields of study all of which emphasize a broad liberal arts education as the foundation for understanding the environmental, social, and cultural forces that shape our world. At the heart of the behavioral and social sciences is the attempt to understand human beings, both individually and in groups. Disciplines in the behavioral and social sciences use approaches that range from the scientific to the philosophical, from the experimental to the theoretical. Integral to all the disciplines, however, is the development and application of problem solving skills, which in combination with other academic skills, enable students to think analytically and to communicate clearly and persuasively. Students interested in human behavior and in solving human and social problems will find many exciting opportunities through the programs and courses offered by the College of Behavioral and Social Sciences.

The College is composed of the following departments, each offering a major program that leads to the Bachelor of Arts or the Bachelor of Science degree, as appropriate:

## 56 College of Behavioral and Social Sciences

Department of African American Studies  
Department of Anthropology  
Department of Criminology and Criminal Justice  
Department of Economics  
Department of Geography  
Department of Government and Politics  
Department of Hearing and Speech Sciences  
Department of Psychology  
Department of Sociology

In addition, the College is a major contributor to the Environmental Science and Policy Program, and sponsors several of its areas of concentration.

\*The Department of African American Studies also offers an undergraduate certificate requiring 21 semester hours of course work (see Undergraduate Certificate Programs in chapter 7).

### Advising

The BSOS Advising Center coordinates advising and maintains student records for BSOS students. Advisors are available to provide information concerning University requirements and regulations, transfer credit evaluations, and other general information about the University by appointments taken on a walk-in basis from 9 a.m. to 5 p.m. daily. Undergraduate advisors for each undergraduate major are located in the department offices. These advisors are available to assist students in selecting courses and educational experiences in their major area of study consistent with major requirements and students' educational goals.

### Graduation Requirements

Each student must complete a minimum of 120 hours of credit with at least a 2.0 cumulative grade point average. Courses must include the credits required in the University's general education requirements (CORE) and the specific major and supporting course and grade requirements of the programs in the academic departments offering bachelor's degrees.

Students in BSOS must complete fundamental studies Math and English by 56 credits.

Students must complete 15 upper-level credits and 12 major credits in the student's final 30 credits.

All students are urged to speak with an academic advisor in their major and an advisor in their College Advising Office at least two semesters before graduation to review their academic progress and discuss final graduation requirements.

### Honors

Undergraduate honors are offered to graduating students in the departments of African American Studies, Anthropology, Criminology and Criminal Justice, Economics, Geography, Government and Politics, Psychology, and Sociology.

**Dean's Academic Scholar.** To be named a Dean's Academic Scholar is the highest academic award that a BSOS student can earn in the College. Dean's Scholars are those graduating seniors who have completed 60 credits at the University of Maryland, College Park and have maintained a minimum cumulative grade point average of 3.8. A student who has been found responsible of a violation of academic integrity is not eligible.

**Dean's List.** Any student who has passed at least 12 hours of academic work in the preceding semester, without failure of any course and with an overall average grade of at least 3.5 will be placed on the Dean's List. The Distinguished Dean's list consists of students who have completed successfully a minimum of 12 credit hours in a semester with a 4.0.

### Student Organizations and Honor Societies

Students who excel in their academic discipline may be selected for membership in an honorary society. Honoraries for which students in BSOS are chosen include:

Alpha Kappa Delta—Sociology  
Alpha Phi Sigma—Criminal Justice  
Gamma Theta Upsilon—Geography  
Lambda Epsilon Gamma—Law  
Omega Delta Epsilon—Economics  
Pi Sigma Alpha—Political Sciences  
Psi Chi—Psychology  
Pi Gamma Mu—Social Sciences

Students who major in the Behavioral and Social Sciences have a wide range of interests. The following is a list of student organizations in the disciplines and fields of the Behavioral and Social Sciences:

Anthropology Student Organization  
Conservation Club  
Criminal Justice Student Association  
Economics Club  
Geography Club  
Government and Politics Club  
Minority Pre-Professional Psychology Society  
National Student Speech-Language and Hearing Association (NSSLHA), Maryland Chapter  
Pre-Medical Society (Pre-Med/Psychology Majors)  
The Forum (Sociology)  
Thurgood Marshall Pre-Law Society

For more information about these student organizations or starting a new student group, please contact the Office of Campus Activities, Adele H. Stamp Student Union, 301-314-7174.

### Field Experiences/Pre-Professional and Professional Training

Pre-professional training and professional opportunities in the behavioral and social sciences are available in many fields. The internship programs offered by many departments in the College provide students with practical experience working in governmental agencies, nonprofit organizations, corporations, and the specialized research centers and laboratories of the College. To earn credit for a BSOS departmental internship, a minimum cumulative grade point average (usually a 3.0) is required.

### Undergraduate Research Opportunities

Undergraduate research internships allow qualified undergraduate students to work with research laboratory directors and faculty in departments and specialized research centers, thus giving the student a chance for a unique experience in the design and conduct of research and scholarship. Students are advised to consult with their department advisors on research opportunities available in the major.

### Research and Service Units

The College of Behavioral and Social Sciences sponsors several special purpose, college-wide research centers. These centers include **The Public Safety Training and Technology Assistance Agency** and the **Center for Substance Abuse Research**. These interdisciplinary centers often offer internships and a selected number of undergraduate research assistant opportunities for interested students. These research experiences offer excellent preparation for future graduate study and/or job opportunities in the private and public sectors. In addition, the college offers computer services through its Office of Academic Computer Services.

#### Center for Substance Abuse Research (CESAR)

Director: Eric D. Wish, 301-403-8329

Established in 1990, CESAR is a research unit sponsored by the College of Behavioral and Social Sciences. CESAR staff gather, analyze, and disseminate timely information on issues of substance abuse and monitor alcohol- and drug-use indicators throughout Maryland. CESAR aids state and local governments in responding to the problem of substance abuse by providing the above-stated information, as well as technical assistance and research. Faculty members from across campus are involved with CESAR-based research, creating a center in which substance-abuse issues are analyzed from multidisciplinary perspectives. Students obtain advanced technical training and hands-on experience through their involvement in original surveys and research.

#### Public Safety, Training and Technology Assistance (PSTTP)

Director: Thomas H. Carr, 301-489-1700

Established in 1994, the Public Safety, Training and Technology Assistance Program (PSTT) (formerly the Washington/Baltimore HIDTA) is co-sponsored by the College of Behavioral and Social Sciences and President Bush's Office of National Drug Control Policy. This program is funded by Congress to help coordinate and fund the fight against drug-related crime and to treat drug-addicted criminal offenders. HIDTA efforts integrate prevention and law enforcement at the community level to reduce the involvement of high-risk youth in drug trafficking careers and criminal behavior. HIDTA also works with private industry and government to form partnerships geared toward

the development of commercial software for use by law enforcement, criminal justice, treatment and regulatory agencies. The Washington/Baltimore HIDTA employs a multi-disciplinary approach that incorporates law enforcement, treatment/criminal justice and prevention through a regional strategy that includes all these disciplines. Faculty members from across campus are involved with HIDTA-based research, and students obtain advanced technical training and hands-on experience through their involvement in data collection, original surveys, geo-mapping and research.

### **Office of Academic Computer Services (OACS)**

0221 LeFrak Hall, 301-405-1670

The College believes strongly that the study of behavioral and social sciences should incorporate both quantitative and computational skills. Consequently, curricula in most departments require some course work in statistics, quantitative research methods, and information technology. The BSOS Office of Academic Computer Services provides undergraduate students in the College with both facilities and staff assistance to satisfy a broad range of computer-related needs. The OACS operates five computer classrooms and a specialized graphics lab that offer a wide variety of popular software, color and black-and-white printing, and both text and graphics scanning. Undergraduate students are also encouraged to take advantage of OACS's learning resources including free computer and statistics training courses, help documentation, a library of computer-related texts, and free access to research data.

## **THE ROBERT H. SMITH SCHOOL OF BUSINESS (BMGT)**

Office of Undergraduate Studies: 1570 Van Munching Hall, 301-405-2286  
[www.rhsmith.umd.edu](http://www.rhsmith.umd.edu)

Professor and Dean: Howard Frank  
Professor and Senior Associate Dean: Assad  
Associate Dean for Professional Programs and Services: Koerwer  
Professor and Director of Doctoral Program: Gordon  
Associate Dean and Director for Undergraduate Programs: Cleveland  
Associate Directors for Undergraduate Programs: Horick, McAllister  
Associate Director for Undergraduate Programs at Shady Grove: Glasgow  
Academic Advisors for Undergraduate Programs: Armstrong, Clothier, Hamilton, Jones, Salinas, Smit

The Robert H. Smith School of Business recognizes the importance of education in business and management to economic, social, and professional development through profit and nonprofit organizations at the local, regional, national, and international levels. The faculty are scholars, teachers, and professional leaders with a commitment to superior education in business and management, specializing in accounting, finance, information systems, operations management, management and organization, marketing, logistics, transportation and supply chain management, and business and public policy. The Smith School of Business is accredited by The Association to Advance Collegiate School of Business (AACSB), the official national accrediting organization for business schools.

### **Degrees**

The university confers the following degrees: Bachelor of Science (B.S.), Master of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Information concerning admission to the M.B.A. or M.S. program is available at [www.rhsmith.umd.edu](http://www.rhsmith.umd.edu).

### **Undergraduate Program**

The undergraduate program recognizes the need for professional education in business and management based on a foundation in the liberal arts. In addition, the program's internationally integrated curriculum prepares students to be effective and responsible managers in today's dynamic business environment.

A student in business and management selects a major in one of several curricula: (1) Accounting; (2) Information Systems; Specialization Business; (3) Finance; (4) General Business; (5) International Business; (6) Operations Management; (7) Marketing; (8) Logistics, Transportation, and Supply Chain Management.

### **Honors Program**

The Smith School Honors program offers students with superior academic achievements special opportunities and resources, including the opportunity to participate in cutting-edge research on business issues, and to graduate with honors. Students in the honors program take their upper-level BMGT core courses in small, seminar-style honors sections, which allow in-depth exploration of business topics in marketing, finance, management and organization, business law, and policy and strategy. The Smith School Honors Program provides both a non-thesis and a thesis option—in which students work on an original research project under the supervision of a Smith School faculty member. Admission to the Smith School Honors Program is competitive. Students are selected on the basis of the following requirements:

- Minimum 3.5 cumulative grade point average
- Minimum 45 credit hours earned
- Completion of all BMGT pre-requisite courses by the end of Spring semester:
  - Accounting I and II – BMGT 220 and 221
  - Statistics – BMGT 230 (or 231)
  - Calculus – MATH 220 or 140
  - Micro- and Macro Economics – ECON 200 and 201

The application to the BMGT Honors program includes a personal essay and two letters of recommendation from faculty. The BMGT Honors application can be downloaded from the Smith School website: [www.rhsmith.umd.edu/undergrad](http://www.rhsmith.umd.edu/undergrad).

Admission to the Smith School Honors Program takes place once a year in the Spring semester. More details are available at [www.rhsmith.umd.edu/undergrad/businesshonors](http://www.rhsmith.umd.edu/undergrad/businesshonors).

### **Advising**

General advising for students admitted to the Smith School of Business is available Monday through Friday in the Office of Undergraduate Programs, 1570 Van Munching Hall, 301-405-2286. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures.

Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 301-314-8217.

### **Admission to Smith School of Business**

See chapter 1 for general LEP admissions policies.

Current policies affect students entering the University System of Maryland or the Maryland Community College system in Fall 2005 and thereafter. Students enrolled at the University System of Maryland or in the Maryland Community College system prior to Fall 2005 will continue to be admitted under the admissions criteria in effect for the Spring 2001 through Spring 2005 terms. Grandfathered admission will end in Fall 2007, when all students must meet the current admission standards. Grandfathered students, however, will be given the option of entering under the new requirements prior to Fall 2007.

### **Freshman Admission**

Admission to the BMGT degree programs is competitive. A limited number of freshmen who demonstrate outstanding talent will be admitted directly to their BMGT major of choice (e.g. Accounting, Finance, etc.). Admission will be on a space available basis. All students are urged to apply early. All students admitted directly to BMGT as freshmen must demonstrate satisfactory progress (2.00 cumulative GPA or better) plus completion of Gateway courses (BMGT 220, BMGT 230, ECON 200 or 201, and MATH 220 or 140—each with a “C” or better) in the semester they reach 45 credits (excluding AP and ESL), at which time they will be reviewed in order to continue in the BMGT major.

Students not directly admitted to the Smith School of Business as freshman can be admitted to the Division of Letters & Sciences, with some of these students enrolling in the Markets and Society program. These students can apply for admission to Business by the semester in which 60 credits are completed. (See Transfer Admission below)

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Transfer Admission for Students from On or Off Campus

- All students applying for admission to BMGT as transfer students, whether internal transfers already enrolled at UMCP or external transfer students entering the university for the first time, will be subject to competitive admission for a limited number of spaces in the BMGT program at each program location.
- To be considered for admission, applicants must complete the following requirements:
  - Minimum 3.0 cumulative GPA (preferred, may vary based upon the applicant pool)
  - Minimum junior standing – 60 credits earned
  - Completion of 50% of lower-level university CORE requirements (Note: ECON 200 and 201 satisfy lower-level SB CORE requirements and MATH 220 or 140 satisfies lower-level MS CORE requirements)
  - Completion of the following Gateway courses, all with “C” or better:
    - o BMGT 220 and 221: Accounting
    - o ECON 220 and 201: Micro and Macro Economics
    - o ENGL 101
    - o MATH 220 or 140: Calculus
    - o BMGT 230 or BMGT 231 or equivalent: Statistics
- Co-curricular involvement, leadership experience and honors and awards will also be considered in the admission decision. Students are strongly encouraged to submit with their applications a resume and letter detailing their accomplishments and experience.
- **Application Deadlines for Transfer Students:** Complete applications and all supporting documents must be received no later than:

Fall semester: August 1st      Spring semester: January 10th

Freshmen who begin study in another major at College Park who would have met the direct BMGT admission standards from high school have until the last day of instruction in the first semester of their freshmen year at College Park to change their major to BMGT.

Appeals to this Policy

Appeals to this policy may be filed with the Office of Undergraduate Admissions, on the ground floor Mitchell Building. Such appeals will require documentation of unusual, extenuating, or special circumstances.

Statement of Policy on Transfer of Credit from Community Colleges

It is the practice of the Smith School of Business to consider for transfer from a regionally accredited community college only the following courses in business administration: an introductory business course, business statistics, introduction to computing (equivalent to BMGT 201), or elementary accounting. Thus, it is anticipated that students transferring from another regionally accredited institution will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of 60 semester hours from a community college may be applied toward a degree from the Smith School of Business.

Other Institutions

The Smith School of Business normally accepts transfer credits from regionally accredited four-year institutions. Junior- and senior-level business courses are accepted from colleges accredited by the Association to Advance Collegiate Schools of Business (AACSB). Junior- and senior- level business courses from other than AACSB-accredited schools are evaluated on a course-by-course basis to determine transferability.

The Smith School of Business requires that at least 50 percent of the business and management credit hours required for a business degree be earned at the University of Maryland, College Park.

Summary of Bachelor of Science Degree Requirements (all curricula)

At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. A minimum of 58 hours of the required 120 hours must be in 300- or 400-level courses. In addition to the requirement of an overall cumulative grade point average of 2.0 (C average) in all university course work. Effective Fall 1989, all business majors must earn a 2.0 or better in all required courses, including Economics, Mathematics, and Communication. Electives outside the curricula of the School may be taken in any department of the university, if the student has the necessary prerequisites.

**Note: Curriculum under review. Please see [www.rhsmith.umd.edu/undergrad](http://www.rhsmith.umd.edu/undergrad) for the most current information.**

| Freshman-Sophomore School Requirements   | Credit Hours |
|--|--------------|
| MATH 220* or 140** Elementary Calculus I or Calculus I .....   | 3 or 4       |
| BMGT 220 and 221 Principles of Accounting I and II .....   | 6            |
| BMGT 230 or 231** Business Statistics .....  | 3            |
| ECON 200 and 201 Principles of Micro + Macro Economics .....   | 8            |
| COMM 100, 107, or 200 Foundations of Speech Comm.,<br>Speech Com., or Critical Thinking and Speaking ..... | 3            |
| <b>Total .....</b>   | <b>23-28</b> |
| ** MATH 140 and 141 are required for Information Systems - Business  |              |
| *** BMGT 231 is required for Information Systems - Business  |              |

| Junior-Senior School Requirements                    | Credit Hours |
|--|--------------|
| BMGT 301 Introduction to Information Systems .....   | 3            |
| BMGT 340 Business Finance .....                      | 3            |
| BMGT 350 Marketing Principles and Organization ..... | 3            |
| BMGT 364 Management and Organizational Theory .....  | 3            |
| BMGT 367 Career Search Strategies in Business .....  | 1            |
| BMGT 380 Business Law .....                          | 3            |
| BMGT 495 or 495H Business Policies .....             | 3            |
| Economics (see below) .....                          | 3-6          |
| <b>Total .....</b>                                   | <b>22-25</b> |

Economics Requirements

3-6 credits of approved upper-level economics courses are required by the Smith School of Business. The specific requirements for each major are listed on the following pages.

Major Requirements

Under each major, 18-24 credits are required. The specific requirements for each major are listed on the following pages.

A Typical Program for the Freshman and Sophomore Years

| Freshman Year  | Credit Hours |
|--|--------------|
| CORE and/or electives .....  | 9            |
| ENGL 101 or equivalent .....   | 3            |
| MATH (depending on placement)* .....   | 3            |
| <b>First semester total .....</b>  | <b>15</b>    |
| CORE and/or electives .....  | 9            |
| COMM 100, 107, or 200 .....  | 3            |
| MATH or BMGT 230/231* .....  | 3            |
| <b>Second semester total .....</b>   | <b>15</b>    |
| Sophomore Year   |              |
| CORE and/or electives .....  | 6            |
| BMGT 220 (Prereq. Sophomore Standing) .....                                  | 3            |
| ECON 200 .....   | 4            |
| MATH or BMGT 230/231* .....  | 3            |
| <b>Third semester total .....</b>  | <b>16</b>    |
| CORE and/or electives .....  | 6            |
| ECON 201 .....   | 4            |
| BMGT 221 (Prereq. BMGT 220) .....  | 3            |
| BMGT 230 (Prereq. MATH 220*) or 231*<br>(Prereq. MATH 141) or elective ..... | 3            |
| <b>Fourth semester total .....</b>   | <b>16</b>    |

\* See Freshman-Sophomore School requirements for appropriate math and statistics courses.

## Curricula

### Accounting

Chair: J. Peters

Professors: Gordon, Kim, M. Loeb, S. Loeb

Tyser Teaching Fellows: Bulmash, Finch, Rymer

Accounting, in a limited sense, is the analysis, classification, and recording of financial events and the reporting of the results of such events for an organization. In a broader sense, accounting consists of all financial systems for planning, controlling, and appraising performance of an organization. Accounting includes among its many facets: financial planning, budgeting, accounting systems, financial management controls, financial analysis of performance, financial reporting, internal and external auditing, and taxation. The accounting curriculum provides an educational foundation for careers in public accounting, management, whether in private business organizations, government or nonprofit agencies, or consulting. Two tracks are provided: The Public Accounting Track leading to the CPA (Certified Public Accounting) and the Management Accounting/Consulting Track. **Please note:** Currently, only the Public Accounting track is available.

#### Major Requirements: All Accounting Majors

|                                     |           |
|-------------------------------------|-----------|
| BMGT 310 Intermediate Accounting I  | 3 credits |
| BMGT 311 Intermediate Accounting II | 3 credits |
| BMGT 321 Managerial Accounting      | 3 credits |
| BMGT 326 Accounting Systems         | 3 credits |

#### Public Accounting Track Requirements:

|  |           |
|--|-----------|
| BMGT 323* Taxation of Individuals      | 3 credits |
| BMGT 422* Auditing Theory & Practice   | 3 credits |
| Plus Two of the following:             |           |
| BMGT 411* (Ethics), 417, 424, 427, 428 | 6 credits |

**Note:** \* Required for CPA in Maryland

#### Management Accounting/Consulting Track Requirements:

|   |           |
|---|-----------|
| BMGT 426 Advanced Managerial Acct.  | 3 credits |
| Plus three of the following:  | 9 credits |
| BMGT 305, 323, 332, 385, 402, 403, 411, 417, 424, 428, 430, 434, 440, 446 |           |

**Total** .....24

|                         |           |
|-------------------------|-----------|
| One of the following:   | 3 credits |
| ECON 305, 306, 330, 340 |           |

**Total** .....3 credits

The basic educational requirements of the Maryland State Board of Public Accountancy to sit for the CPA examination are a baccalaureate or higher degree with a major in Accounting or with a non-accounting degree supplemented by course work the Board determines to be substantially the equivalent of an Accounting major. Students planning to take the CPA examination for certification and licensing outside Maryland should determine the educational requirements for that state and arrange their program accordingly.

**Since June 30, 1999, all applicants who desire to take the CPA examination in Maryland have been required to have completed 150 semester hours of college work as well as other specified requirements.**

### Decision and Information Technologies

Chair: G. Anandalingam

Professors: Anandalingam, Agarwal, Assad, Ball, Bodin (Emeritus), Frank, Fu, Gass (Emeritus), Golden, Lucas, Raschid, Riley

Associate Professors: Alt, Chen, Faraj, Raghavan

Assistant Professors: Dellarocas, Druehl, Elmaghraby, Gopal, Gosain, Jank, Karaesmen, Mishra, Mithas, Raghavan, Shmueli, Smueli, Stewart, Souza, Viswanathan, Zantek

Visiting Professor: Prasad

Tyser Teaching Fellows: Ibrahim, Lete, Ruhi, Studer-Ellis

The Department of Decision and Information Technologies offers two majors: Information Systems - Specialization: Business, and Operations Management.

### Information Systems - Specialization: Business

The Business Area of Concentration in the Information Systems (IS) program prepares students to be effective users and managers of information technologies and systems in the current environment of the technology-enabled business firm. The IS major focuses on the data processing skills, the analytical skills, and the managerial plus organizational knowledge required to design and manage information systems and applications based on business and customer requirements. The major's core emphasizes the concepts of systems analysis and design and database management systems. In addition to a broad grounding in the key functional areas of marketing, operations, accounting, and finance, this major develops in-depth knowledge of information processing technology, information systems implementation, project management, and management science and statistics.

|  |           |
|--|-----------|
| BMGT 302 Business Computer Application Programming           | 3 credits |
| BMGT 305 Survey of Business Information Systems & Technology | 3 credits |
| BMGT 402 Database Systems                                    | 3 credits |
| BMGT 403 Systems Analysis and Design                         | 3 credits |
| BMGT 407 Information Systems Projects                        | 3 credits |
| BMGT 485 Project Management                                  | 3 credits |

One of the following:

BMGT 430 Linear Statistical Models in Business

BMGT 434 Introduction to Optimization

BMGT 486 Total Quality Management

One of the following: .....3 credits

BMGT 405 Business Telecommunications

BMGT 406 Electronic Commerce Application Development

**Total** .....24 credits

One of the following:

ECON 305, 306, 430, or 440 ..... 3 credits

**Total** .....3 credits

**Note: Curriculum under review. Please see [www.rhsmith.umd.edu/undergrad](http://www.rhsmith.umd.edu/undergrad) for the most current information.**

### Operations Management

Operations Management involves the design and management of an organization's systems and processes focusing on the creation and delivery of products and services. This includes such functions as capacity planning, inventory management, logistics management, production planning and control, resource allocation and total quality. Career opportunities exist in consulting, manufacturing, retailing, service organizations and government.

Students pursuing the Operations Management major must complete MATH 220 or MATH 140 and BMGT 230 or 231 prior to junior standing; and those interested in graduate work in this field are strongly advised to complete MATH 141, MATH 240 and 241 as well.

The course requirements for the junior-senior curriculum concentration in Operations Management are as follows:

#### Credit Hours

|   |   |
|---|---|
| BMGT 332 Operations Research for Management Decisions | 3 |
| BMGT 385 Operations Management                        | 3 |
| BMGT 485 Project Management                           | 3 |

One of the following courses (check prerequisites): .....3

BMGT 430 Linear Statistical Models in Business

BMGT 434 Introduction to Optimization

BMGT 435 Business Process Simulation

Two of the following courses (check prerequisites): .....6

BMGT 430 Linear Statistical Models in Business

BMGT 434 Introduction to Optimization

BMGT 435 Business Process Simulation

BMGT 372 Introduction to Logistics and Supply Chain Management

BMGT 403 Systems Analysis and Design

BMGT 486 Total Quality Management or

BMGT 487 Six Sigma Innovation

BMGT 490H The Total Quality Practicum

(Open only to QUEST students)

**Total** .....18 credits

One of the following:

ECON 305, 306, 330, or 340 .....3 credits

**Total** .....3 credits



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### Finance

Chair: Senbet

Professors: Bakski, Madan, Maksimovic, Senbet, Unal

Associate Professors: Phillips, Prabhala, Triantis, Wermers

Assistant Professors: Avramov, Chen, Cichello, Heston, Hoberg, Hvidkjaer,

Kiss, Loewenstein, Marquez, Vandeweghe, White, Willard

Visiting Professors: Falato, Lamdin

Finance encompasses:

- (1) Corporate finance: The financial management of corporations
- (2) Investments: The management of securities and portfolios
- (3) Financial institutions and markets: The management of financial institutions and the study of their role in the economy

The Finance curriculum is designed to familiarize the student with the institutions, theory, and practice involved in the allocation of financial resources within the private sector. It provides an educational foundation for careers involving corporate financial analysis and management, investment analysis and portfolio management, investment banking, risk management, commercial banking, and international finance; it also provides a foundation for graduate study in business administration, economics, and law.

Course requirements for the junior-senior curriculum concentration in Finance are as follows:

|  | Credit Hours |
|--|--------------|
| Both of the following courses: .....                         | 6            |
| BMGT 343 Investments   |              |
| BMGT 440 Advanced Financial Management                       |              |
| Three of the following courses: .....                        | 9            |
| BMGT 443 Applied Equity Analysis and Portfolio Management    |              |
| BMGT 444 Futures and Options Contracts                       |              |
| BMGT 445 Banking and Financial Institutions                  |              |
| BMGT 446 International Finance                               |              |
| BMGT 447 Internship and Research in Finance                  |              |
| BMGT 498 Special Topics in Business and Management (Finance) |              |
| One of the following courses: .....                          | 3            |
| BMGT 310 Intermediate Accounting                             |              |
| BMGT 332 Operations Research for Management Decisions        |              |
| BMGT 430 Linear Statistical Models in Business               |              |
| BMGT 434 Introduction to Optimization                        |              |
| <b>Total .....</b>   | <b>18</b>    |
| ECON 330 or ECON 431 .....                                   | 3            |
| One of the following:  |              |
| ECON 305, 306, 340, 402, or 450.....                         | 3            |
| <b>Total .....</b>   | <b>6</b>     |

### Marketing

Chair: Rust

Professors: Greer (Emeritus), Ratchford, Rust

Associate Professors: Biehal, Jain, Kannan, Krapfel, Nickels (Emeritus), Ratner, Srivastava, Wagner

Assistant Professors: Ferraro, Foutz, Hamilton, Moe

The goal of marketing is to satisfy all the stakeholders of the firm—employees, dealers, stockholders, and customers—by seeing that quality goods and services are developed and provided at fair prices and in a way that benefits the community and society. World-class competition has forced businesses to develop marketing programs that are as good as the best. This means getting closer to the customer, joining other organizations to create value for the consumer, and designing integrated distribution and communication programs that provide a seamless flow from producers to consumers. Pricing, communication/promotion, product/service, and distribution activities inherent in the development of marketing programs are applicable to non-profit organizations, business-to-business organizations, and firms that sell to ultimate consumers.

Many types of careers are available to the marketing major. These include, but are not limited to: sales, advertising, retailing, product/service management, and marketing research. Because of the many different employment opportunities in marketing, many marketing electives are offered along with three core courses required of all marketing majors—consumer analysis, marketing research, and marketing strategy.

Course requirements for the junior-senior curriculum concentration in Marketing are as follows:

|  | Credit Hours |
|--|--------------|
| BMGT 451 Consumer Analysis .....                               | 3            |
| BMGT 452 Marketing Research Methods .....                      | 3            |
| BMGT 457 Marketing Policies and Strategies .....               | 3            |
| Three of the following courses: .....                          | 9            |
| BMGT 351 Direct Marketing                                      |              |
| BMGT 353 Retail Management                                     |              |
| BMGT 357 Retailing and Marketing Internship (3 credits only)   |              |
| BMGT 372 Introduction to Logistics and Supply Chain Management |              |
| BMGT 450 Integrated Marketing Communications                   |              |
| BMGT 453 Industrial Marketing                                  |              |
| BMGT 454 International Marketing                               |              |
| BMGT 455 Sales Management                                      |              |
| BMGT 484 Electronic Marketing                                  |              |
| <b>Total .....</b>   | <b>18</b>    |

One of the following:

ECON 305, 306, 330 or ECON 340..... 3

One additional ECON from the following:

ECON 305, 306, 311, 315, 316, 317, 330, 340, 361, 370  
374, 375, 380 or any 400-level ECON..... 3

**Total .....** 6

### Logistics, Business, and Public Policy

Chair: Windle

Professors: Corsi, Dresner, Grimm, Leete, Morici, Preston†, Windle

Associate Professor: Evers, Newberg

Assistant Professors: Chung, Gillyard, Hutchens, Sampson, Somaya

Tyler Teaching Fellows: Dewitt, Olson, Shaffer, Turner

Visiting Professors: McClenahan, Miller, Olson

†Distinguished Scholar-Teacher

### Logistics, Transportation, and Supply Chain Management

The supply chain encompasses all organizations involved in production of a good or service and its ultimate delivery to the end customer. Supply chain managers oversee many varied but inter-related processes including the flow of materials, information, and transactions (to name a few). Logistics deals primarily with the materials flow component of the supply chain, and logistics managers are responsible for fulfilling customer orders while simultaneously controlling distribution costs.

While transportation is the heart of logistics; inventory control, warehousing, order processing, materials handling, packaging, and customer service are important logistics activities. These logistics activities comprise up to 30 percent of total costs for many businesses. The cost of freight transportation alone is about 8 percent of the nation's annual domestic product.

Course requirements for the junior-senior curriculum concentration in Logistics, Transportation, and Supply Chain Management are as follows:

|  |          |
|--|----------|
| BMGT 370 Introduction to Transportation in Supply Chain Management .....   | 3        |
| BMGT 372 Introduction to Logistics and Supply Chain Management .....   | 3        |
| BMGT 476 Applied Computer Models in Supply Chain Management .....  | 3        |
| Two of the following courses .....   | 6        |
| BMGT 373 Logistics, Transportation, and Supply Chain Management Internship   |          |
| BMGT 470 Advanced Transportation Management  |          |
| BMGT 472 Advanced Logistics Operations   |          |
| BMGT 475 Advanced Supply Chain Management Strategy and Technologies  |          |
| BMGT 477 International Supply Chain Management   |          |
| One of the following courses.....  | 3        |
| BMGT 305 Survey of Business Information Systems and Technology   |          |
| BMGT 332 Operations Research for Management Decisions  |          |
| BMGT 385 Operations Management   |          |
| BMGT 482 Business and Government   |          |
| BMGT 484 Electronic Marketing  |          |
| GEOG 373 Geographic Information Systems  |          |
| GEOG 430 Location Theory and Spatial Analysis or one of the following not selected above from BMGT 373, 470, 472, 475 or 477                       |          |
| One of the following:  |          |
| ECON 305, 306, 330 or ECON 340.....  | 3        |
| One additional ECON from the following:  |          |
| ECON 305, 306, 311, 315, 316, 317, 330, 340, 361, 370<br>374, 375, 380, 422, 423, and 425, or any 400-level ECON<br>except 422, 423, and 425 ..... | 3        |
| <b>Total .....</b>   | <b>6</b> |

## General Business

General Business is designed for those who desire a broad course of study in business and management. This degree is appropriate, for example, for those who plan to enter small-business management or entrepreneurship where general knowledge of the various fields of study may be preferred to a more specialized curriculum concentration.

Course requirements for the junior-senior curriculum concentration in General Business and Management are as follows:

|  | <b>Credit Hours</b> |
|--|---------------------|
| <b>Accounting/Finance</b>                                      |                     |
| One of the following courses: .....                            | 3                   |
| BMGT 321 Managerial Accounting                                 |                     |
| BMGT 440 Advanced Financial Management                         |                     |
| <b>Decision &amp; Information Sciences</b>                     |                     |
| One of the following courses: .....                            | 3                   |
| BMGT 332 Operations Research for Management Decisions          |                     |
| BMGT 305 Survey of Business Information Systems and Technology |                     |
| <b>Marketing</b>   |                     |
| One of the following courses: .....                            | 3                   |
| BMGT 353 Retail Management                                     |                     |
| BMGT 450 Integrated Marketing Communications                   |                     |
| <b>International Business and Public Policy</b>                |                     |
| One of the following courses: .....                            | 3                   |
| BMGT 392-Introduction to International Business                |                     |
| BMGT 482 Business and Government                               |                     |
| BMGT 496 Business Ethics and Society                           |                     |
| <b>Management &amp; Organization</b>                           |                     |
| One of the following courses: .....                            | 3                   |
| BMGT 360 Human Resource Management                             |                     |
| BMGT 461 Entrepreneurship                                      |                     |
| <b>Supply Chain Management</b>                                 |                     |
| One of the following courses: .....                            | 3                   |
| BMGT 372 Introduction to Logistics and Supply Chain Management |                     |
| BMGT 385 Operations Management                                 |                     |
| <b>Total .....</b>   | <b>18</b>           |
| Two of the following: ECON 305, 306, 330, or 340 .....         | 6                   |
| <b>Total .....</b>   | <b>6</b>            |

**Note: Curriculum under review. Please see [www.rhsmith.umd.edu/undergrad](http://www.rhsmith.umd.edu/undergrad) for the most current information.**

## International Business

International Business responds to the global interest in international economic systems and their multicultural characteristics. This degree combines the college-required courses with International Business courses and provides students the opportunity to apply a specified upper level foreign language course toward this specialization's requirements. It is strongly recommended that this program be declared in combination with another major in or outside of business in order to assure that graduates will have specialized career focus.

Course requirements for the junior-senior curriculum concentration in General Business and Management, International Business option, are:

|  | <b>Credit Hours</b> |
|--|---------------------|
| BMGT 392 Introduction to International Business .....  | 3                   |
| BMGT 454 International Marketing .....   | 3                   |
| BMGT 477 International Supply Chain Management .....   | 3                   |
| BMGT 446 International Finance.....  | 3                   |
| BMGT 463 Cross-cultural Challenges in Business .....   | 3                   |
| BMGT 466 Global Business Strategy .....  | 3                   |
| <b>Total .....</b>   | <b>18</b>           |
| ECON 340 International Economics .....   | 3                   |
| One of the following:  |                     |
| ECON 305, 306, 315, 316, 330, 380 or an agreed upon foreign language credits which includes CHIN 412, FREN 406, GERM 412, ITAL 406, JAPN 404, RUSS 407, SPAN 415 ..... | 3                   |
| <b>Total .....</b>   | <b>6</b>            |

## Quest Program

The University of Maryland's Quality Enhancement Systems and Teams Program (QUEST) program is a collaborative effort between the Robert H. Smith School of Business and the A. James Clark School of Engineering. QUEST graduates enter the work force with invaluable skills, excelling in teamwork, customer value management, process and product design, project management and customer satisfaction.

The QUEST Program consists of team-based courses led by an interdisciplinary faculty with a senior level practicum that places students in the workplace for research and group problem-solving. Students will complete courses devoted to the integration of quality in the workplace, applying the knowledge and skill-set they have gained from their major in the field of engineering, business, or computer, mathematical or Physical Science. The capstone course gives QUEST students the opportunity to apply the principles of cross-functional thinking in a corporate environment.

For more details on this program including admissions, please visit the QUEST Program website at [www.rhsmith.umd.edu/quest](http://www.rhsmith.umd.edu/quest).

## Honors

### Honor Societies

**Beta Gamma Sigma.** National scholastic honorary society in business administration. To be eligible students must rank in the upper 5 percent of their junior class or the upper 10 percent of their senior class in the Smith School of Business. Students are eligible the semester after they have earned 45 credits at the University of Maryland, College Park, and have earned a total of 75 credits.

### Student Awards

For high academic achievement, students in the School may receive recognition by the Dean's List and Beta Gamma Sigma, National Business Honor Society.

### Scholarships

For details on available scholarships, please visit the following website, [www.rhsmith.umd.edu/undergrad/Scholarships.html](http://www.rhsmith.umd.edu/undergrad/Scholarships.html).

### Student Professional Organizations

Students may choose to associate themselves with one or more professional organizations.

Visit [www.rhsmith.umd.edu/susa](http://www.rhsmith.umd.edu/susa) for more details and a complete list of organizations.

Course Code: BMGT

## COLLEGE OF CHEMICAL & LIFE SCIENCES

1302 Symons Hall, 301-405-2080  
[www.chemlife.umd.edu/](http://www.chemlife.umd.edu/)

Professor and Dean: Norma Allewell  
Associate Deans: Robert Infantino, Jr., Lawrence Sita  
Assistant Deans: Amel Anderson, Lisa Bradley-Klemko

The undergraduate degree programs in the College of Chemical and Life Sciences are:

Chemistry  
Biochemistry  
Biological Sciences  
Environmental Sciences & Policy

The majors in Chemistry and Biochemistry are housed in the Department of Chemistry and Biochemistry and are broadly based to prepare students for employment, graduate school, or professional school. The Biological Sciences major is jointly offered by the departments of Biology, Cell Biology & Molecular Genetics, and Entomology. Biological Sciences students may study broadly in General Biology, or specialize in upper level course work in Cell Biology & Genetics, Ecology & Evolution, Microbiology, or Physiology & Neurobiology. A double major program with the College of Education provides certification to teach High School Chemistry or Biology. The College grants degrees in the Biodiversity and Conservation specialization in the Environmental Science and Policy major.

Opportunities are available across the College and off-campus for undergraduates to participate in basic and applied research projects, and research experience is encouraged for all undergraduate students. Off campus opportunities include National Institutes of Health, Food and Drug Administration, National Institute of Standards and Technology, The Smithsonian, the National Zoo, private biotechnology firms, and many others. The College has special offerings in all of the campus-wide academic programs such as Gemstones, Honors, College Park Scholars, and Freshman Learning Communities.

## 62 College of Computer, Mathematical, and Physical Sciences

### Admission

Students applying for admission should consult the University Admissions section for general information about admissions requirements and recommended courses. Students who plan to enter an undergraduate program in the College of Chemical and Life Sciences should include the following subjects in their high school program: at least two units in the biological sciences and physical sciences (chemistry, physics); and four units of mathematics – algebra, geometry, pre-calculus and calculus. Math and science coursework at the honors/AP/IB level is strongly encouraged. For further information about admissions to the College of Chemical and Life Sciences, contact Eden Garosi, Asst. to the Dean for Admissions, 301-314-8375.

### Advising

Entering students are advised by professional advisors in the College's Student Affairs Office. When a student has selected a major or specialization and successfully completed the entry level courses in Chemistry, Mathematics, and the Biosciences, (s)he is assigned to a faculty advisor. All students must meet with an advisor at least once a semester.

Students following pre-professional programs will be advised by knowledgeable faculty. For further information on the pre-professional programs offered at College Park, see chapter 7.

### Degree Requirements

See entries under individual degree programs in Chemistry and Biochemistry, Biological Sciences, and Environmental Sciences.

### Honors

Students in the College of Chemical and Life Sciences participate in Gemstones, the University Honors program and College Park Scholars, and research-intensive departmental honors programs.

### College Park Scholars—Life Sciences

Director: Dr. Lee Hellman  
Assistant Director: Dr. Marcia Shofner  
1119 Cumberland Hall, 301-405-0528

The College sponsors the College Park Scholars-Chemical and Life Sciences program for entering freshman who are admitted by invitation during the admissions process. Students meet weekly in colloquia with faculty where they learn more about the diverse areas of study in the life sciences. Scholars are also clustered in course sections which fulfill major and general education requirements. International travel-study course opportunities led by College faculty are available as a part of the program. Students create a community of living and learning in a specially-equipped residence hall.

### Departmental Honors

Students may apply to participate in research-based departmental honors programs in the each of the departments of the College. Based on the student's performance in research and defense of a written thesis, the department may recommend candidates for the appropriate degree with Departmental Honors or Departmental High Honors. Successful completion of departmental honors will be recognized on a student's academic transcript and diploma. Participation in the University Honors program is not required for entry into a departmental honors program. See departmental listings or consult with an academic advisor in the College for more information.

### Joint Biomedical Research Program with the University of Maryland School of Medicine

Students may apply for the joint Biomedical Science Research Program between the Department of Medical and Research Technology (DMRT), University of Maryland School of Medicine, and the College of Chemical and Life Sciences. Students who have successfully completed 60 credits of prerequisite courses at the University of Maryland, College Park may be considered for the program. Beginning in the junior year within the UM School of Medicine, students will develop skills in a variety of biotechnology methodologies as well as become familiar with the operation of analytical instruments used in clinical laboratories, biomedical science, and biosafety and quality assurance issues. Interested students should call the DMRT Admissions Office at 410-706-7664.

For additional information on the College of Chemical and Life Sciences please check our website: [www.chemlife.umd.edu](http://www.chemlife.umd.edu).

## COLLEGE OF COMPUTER, MATHEMATICAL, AND PHYSICAL SCIENCES (CMPS)

3400 A.V. Williams, 301-405-2677  
[cmqsque@deans.umd.edu](mailto:cmqsque@deans.umd.edu) (for CMPS advising questions)  
[www.cmqs.umd.edu/](http://www.cmqs.umd.edu/)

Dean: Stephen Halperin  
Associate Dean: Ronald L. Lipsman  
Associate Dean: Deborah R. Bryant

*"For a successful technology, reality must take precedence over public relations, for Nature cannot be fooled."* Richard P. Feynman. Nationally recognized for our education, research, faculty and students, the College of Computer, Mathematical and Physical Sciences is a critical educational and scientific resource benefiting the region and the nation.

The College offers every student a high-quality, innovative and cross-disciplinary educational experience. Strongly committed to making studies in the sciences available to all, the College actively encourages and supports the recruitment and retention of women and minorities.

Our students have the opportunity of working closely with first-class faculty in state-of-the-art labs both on and off campus on some of the most exciting problems of modern science and mathematics. We have developed courses to reflect the evolving nature of IT subjects and the rapidly changing world of science and mathematics. As a new approach to undergraduate education, multiple tracks are offered within majors, including tracks for future teachers and tracks with an emphasis on computation.

Students participate in Departmental Honors programs, Corporate Scholars, the Gemstone program, Quest and College Park Scholars. They apply their lab and classroom skills through internships at area companies. Excellent advising and career services are in place to help our undergraduates transition to graduate programs, public service or private sector commerce. Our highly skilled graduates pursue careers in a great many fields and professions.

### Structure of the College

The following departments, programs and research units comprise the College:

- Department of Astronomy
- Department of Computer Science
- Department of Geology
- Department of Mathematics
- Department of Atmospheric and Oceanic Science
- Department of Physics
- Center for Scientific Computation and Mathematical Modeling\*
- Applied Mathematics and Scientific Computation
- Earth System Science Interdisciplinary Center
- Chemical Physics Program
- Physical Sciences Program
- Statistics Program
- Institute for Advanced Computer Studies
- Institute for Physical Sciences and Technology
- Institute for Research in Electronics and Applied Physics (joint with College of Engineering)

\*See the separate listing for the program in chapter 7.

### Degree Programs

The following Bachelor of Science (B.S.) degree programs are offered to undergraduates by the departments and programs of the College: Astronomy, Computer Engineering, Computer Science, Geology, Mathematics, Physics, and Physical Sciences.

In addition, Geology sponsors one of the areas of concentration in the Environmental Science and Policy program.

### Minors

[www.cmqs.umd.edu/undergraduate/programs.htm](http://www.cmqs.umd.edu/undergraduate/programs.htm)

The College offers Minors in the following areas:

Astronomy  
Computer Science  
Surficial Geology  
Earth Material Properties  
Earth History  
Hydrology  
Meteorology  
Atmospheric Chemistry  
Atmospheric Sciences  
Physics  
Actuarial Mathematics  
Statistics

Minors in the College offer students in all disciplines the opportunity to pursue a structured program of study in a field outside their major. Each student who successfully completes a minor will have the accomplishment noted on their transcript. Consult departmental advisors and websites for further information.

## Honors

### Honors Programs

Undergraduate honors are offered to students in the Physical Sciences Program and the departments of Astronomy, Computer Science, Geology, Mathematics and Physics. Specific information is provided under the individual program descriptions.

### College Park Scholars

CPS in Science, Discovery & the Universe—Co-Director: Jay Frogel  
CPS in Earth, Life & Time—Director: Thomas R. Holtz, Jr.

The College co-sponsors two College Park Scholars programs, Science, Discovery & the Universe and Earth, Life & Time. These living/learning programs focus around the academic disciplines of the faculty, space sciences (in particular planetary science) and the historical natural sciences (in particular paleontology and evolutionary biology), respectively. In these two-year programs for incoming freshmen, students are brought together around common intellectual interests. The program seeks to inspire students to develop their interests and intellectual capacity by building a community where everyone has shared interests in scholarly pursuits. The Scholars program allows students to experience a small college environment and to work closely with faculty working at the forefront of their fields of expertise.

**Dean's List.** Each student who has passed at least 12 hours of academic work in the preceding semester with an overall average grade of at least 3.5 will be placed on the Dean's List.

**Associate Dean's Commendation.** Each student who has passed at least 12 hours of academic work in the preceding semester with an overall average grade between 3.0 and 3.5 will be placed on the Associate Dean's Commendation list.

**J. R. Dorfman Prize for Undergraduate Research.** An award is presented at the spring Academic Festival for the best research project conducted on or off campus by a current College undergraduate major.

## Advising

The Undergraduate Education Office, 3400 A.V. Williams Building, 301-405-2677, centrally coordinates advising and the processing and updating of student records. Inquiries concerning university regulations, transfer credit, Dean's Exceptions and other general information should be addressed to this office. Specific departmental information in relationship to majors is best obtained directly from academic departments. Each department in the College requires semester advising for registration and future course planning. Advisors in departments are available on walk-in and appointment basis. Please check with departments for specifics. Students are also encouraged to contact the office by e-mail at [cmqsque@deans.umd.edu](mailto:cmqsque@deans.umd.edu). Assistance is also available by phone at 301-405-2677.

## Scholarships

[www.cmqs.umd.edu/undergraduate/index.htm](http://www.cmqs.umd.edu/undergraduate/index.htm)

For currently enrolled students the College accepts merit and need-based award and scholarship applications on the College Scholarship Application Form. Students should complete one form only and submit either electronically or via surface mail. Applicants will be considered for all merit and need-based scholarships administered by the College for which they are eligible. Eligible students will also be contacted by email with information on special programs. For best consideration, College

scholarship applications for each academic year should be submitted by May 10 for the school year beginning the following September.

Departmental scholarships may have different deadlines. For additional information visit our website.

## Recruitment

3400 A.V. Williams 301-405-2677

[www.cmqs.umd.edu/undergraduate/prospective\\_students.htm](http://www.cmqs.umd.edu/undergraduate/prospective_students.htm)

Recruitment Coordinator: Andrew Janosko ([ajanosko@umd.edu](mailto:ajanosko@umd.edu))

The College's Recruitment Coordinator serves as a resource and contact person for prospective students interested in bachelor degrees and also serves as a liaison to the Office of Undergraduate Admissions.

## Graduation Requirements

1. A minimum of 120 semester hours with at least a C average is required of all Bachelor of Science degrees from the College.
2. Forty-three credit hours that satisfy the general education CORE program requirements of the University. In some instances, courses taken to satisfy these requirements may also be used to satisfy major requirements.
3. Major and supporting coursework as specified under each department or program.
4. The final 30 semester hours must be completed at College Park. Occasionally, the Dean may waive this requirement for up to 16 of the 30 credits cited. Such a waiver is considered only if the student already has 75 credits in residence.
5. Students must be enrolled in the program in which they plan to graduate by the time they register for the last 15 hours.

## CMPS Internship and Career Services

3400 A.V. Williams Building, 301-405-2677

[www.cmqs.umd.edu/careers/index.htm](http://www.cmqs.umd.edu/careers/index.htm)

The College provides students with an educational experience that will help them succeed in their chosen professions. While the classroom provides academic preparation, the College in co-operation with the University of Maryland's Career Center, assists students with career related considerations. For students majoring in astronomy, computer science, geology, mathematics, physical sciences and physics, the CMPS Career Connection eNewsletter is a valuable resource listing both internships and full-time positions, while the CMPS 497: Internship Seminar provides an academic component for the internship experience. Internships are an invaluable tool for career exploration, internships allow students to build relevant resumes while still in school, and internships also often develop into permanent jobs after graduation.

## CMPS Corporate Scholars Program

3400 A.V. Williams Building

[www.cmqs.umd.edu/csp/index.htm](http://www.cmqs.umd.edu/csp/index.htm)

Contact: Lawrence Liff at [lliff@umd.edu](mailto:lliff@umd.edu).

The Corporate Scholars Program is a combined internship and scholarship program that provides highly talented CMPS students with work experience related to their fields of study. The program is a unique endeavor by the College to expand and improve our student's education and build better relationships with local corporations.

## CMPS Undergraduate Research Experiences

[www.cmqs.umd.edu/undergraduate/research.htm](http://www.cmqs.umd.edu/undergraduate/research.htm)

Internships are valuable. Research is fascinating. Students can experience scientific discovery first hand. Knowledge learned in class is used and applied. Students learn the scientific method in a real experimental setting, and see how new scientific knowledge is created. Be a part of the science discovery in CMPS, which places the college among the top 15 public and private universities nationwide. A research experience provides a first hand route into professional problem-solving and may lead to publication. It gives students personal contact with faculty, postdoctoral fellows and graduate students, and a real picture of graduate school. Employers and graduate schools look for research experience in applicants.

## 64 College of Computer, Mathematical, and Physical Sciences

### **STAND Science and Technology:**

#### **Addressing the Need for Diversity**

3400 AV Williams Building, 301-405-0127

[www.cmps.umd.edu/stand/index.htm](http://www.cmps.umd.edu/stand/index.htm)

Director: Joelle Davis Carter

The College implemented the STAND program to address the longstanding national need to increase the number of underrepresented groups, including Black, Latino/a, Native American and women in the computer, earth, mathematical and physical sciences. STAND serves as the umbrella for both the College undergraduate and graduate activities of the program. STAND supports students by creating a sense of community, rewarding excellence through scholarships and fellowships, instilling the importance of community involvement through recruitment and outreach activities, building lasting relationships through mentoring, and preparing students for success in graduate school, professional careers and beyond.

Current STAND program components include: CMPS SCORE (Student Community for Outreach, Retention and Excellence), the PRIME (Providing Research, Internships, and Mentoring Experiences) Scholarship Program, Community Services Opportunities and the SPIRAL (Summer Program in Research and Learning), which is a six-week summer institute targeted towards sophomore and junior students attending minority institutions. The SPIRAL program enables students to gain an understanding of professional opportunities in mathematics and science, engage in research with college scientists, and prepare for graduate school and professional life.

## **Research Units**

### **Institute for Advanced Computer Studies**

2119 A. V. Williams Building, 301-405-6722

[www.umiacs.umd.edu/](http://www.umiacs.umd.edu/)

Professor and Director: V.S. Subrahmanian

The faculty at the Institute for Advanced Computer Studies conduct fundamental research at the interface between computer science and other scientific disciplines supported by a state-of-the-art computing infrastructure. These interdisciplinary research programs offer opportunities for thesis research and classroom instruction, with a planned new focus on human-computer interaction, bioinformatics and computational biology. The Institute is internationally known in computer vision and graphics, parallel and distributed computing, information visualization and educational technologies, natural language processing and computational linguistics, software engineering, and multimedia and internet computing. Courses and thesis research guidance by Institute faculty are provided under the auspices of the labs, centers, and the academic departments affiliated with the Institute.

### **Institute for Physical Science and Technology**

4211 Computer and Space Sciences Building, 301-405-4877

[www.ipst.umd.edu/](http://www.ipst.umd.edu/)

Professor and Director: Rajarshi Roy

The faculty members of the Institute for Physical Science and Technology are engaged in the study of pure and applied science problems that are at the boundaries between those areas served by the academic departments. Areas of emphasis vary but include scientific computation, statistical physics and chaotic dynamics, chemical physics, optical (laser) physics, and space and upper atmospheric physics. These interdisciplinary problems afford challenging opportunities for thesis research and classroom instruction. Courses and thesis research guidance by Institute faculty are provided either through the graduate program in chemical physics, the scientific computation and mathematical modeling program, or under the auspices of other departments.

### **Institute for Research in Electronics and Applied Physics**

Energy Research Building, 301-405-4951

[www.ireap.umd.edu/](http://www.ireap.umd.edu/)

Professor and Director: Dan Lathrop

The Institute for Research in Electronics and Applied Physics (IREAP) is jointly administered by the College and the A. James Clark School of Engineering. The faculty members in IREAP study diverse scientific problems that are on the boundaries between physics and engineering, and teach relevant courses in the College and Engineering Departments. IREAP conducts experimental and theoretical research in nonlinear dynamics (chaos), high-temperature plasma physics, plasma spectroscopy, relativistic microwave electronics, high-brightness charged particle beams, free-electron lasers, laser-plasma interactions, ion beam microfabrication techniques, and microwave sintering of advanced materials. IREAP is recognized internationally as a leading

university research center in these areas of research. We actively encourage undergraduate participation in our research program through independent study, special projects, and internships under faculty supervision.

### **Center for Automation Research**

Center for Automation Research

4417 A.V.Williams Building, 301-405-4526

[www.cfar.umd.edu/](http://www.cfar.umd.edu/)

Professor and Director: Ramalingam Chellappa

The Center for Automation Research is part of the Institute for Advanced Computer Studies. Its faculty conduct fundamental research in areas related to spatial data, computer graphics, image processing, and computer vision. This interdisciplinary research contributes to classroom instruction, and provides opportunities for thesis research, in these areas. Courses and research guidance by the Center's faculty are conducted under the auspices of the laboratories and academic departments affiliated with the Center.

### **Earth System Science Interdisciplinary Center**

2207 Computer and Space Science Building, 301-405-5599

[www.essic.umd.edu/](http://www.essic.umd.edu/)

Professor and Director: Antonio J. Busalacchi

ESSIC is a joint center between the Departments of Atmospheric and Oceanic Sciences, Geology, and Geography together with the Earth Sciences Directorate at the NASA Goddard Space Flight Center. The goal of the Center is to enhance our understanding of how the atmosphere-ocean-land-biosphere components of the Earth interact as a coupled system. This is accomplished via studies of the interaction between the physical climate system (e.g., El Nino) and biogeochemical cycles (e.g., greenhouse gases, changes in land use and cover). The major research thrusts of the Center are studies of Climate Variability and Change, Atmospheric Composition and Processes, and the Global Carbon Cycle (including Terrestrial and Marine Ecosystems/Land Use/Cover Change). The manner in which this research is accomplished is via analyses of in situ and remotely sensed observations together with component and coupled ocean-atmosphere-land models. Together this provides a foundation for understanding and forecasting changes in the global environment and assessing regional implications. Data assimilation and regional downscaling provide the means by which the observations and models are linked to study the interactions between the physical climate system and biogeochemical cycles from global to regional scales. Courses and research guidance by Center faculty are provided through the Departments of Geography, Geology and Atmospheric and Oceanic Sciences, or under the auspices of College interdisciplinary listings.

### **Center for Scientific Computation and**

#### **Mathematical Modeling**

4149 Computer Science Instructional Center, 301-405-0648

[www.cscamm.umd.edu/](http://www.cscamm.umd.edu/)

Professor and Director: Eitan Tadmor

The ability to compute at tremendous speeds with gigantic data sets is enabling advances in nearly every discipline. Scientific computation plays a leading role in the study of protein folding, climate evolution, weather prediction, star formation, plasma turbulence, quark-gluon interactions and high-temperature superconductivity. At the Center for Scientific Computation and Mathematical Modeling, graduate students and faculty are working together to develop and to understand fundamental computational techniques, algorithms and analytical tools, and to apply this understanding to outstanding scientific problems in a variety of fields. Undergraduate research opportunities exist for students who are interested in learning how to use computers to understand how the world works.

### **Materials Research Science and Engineering Center**

2120 Physics Building, 301-405-8349

[mrsec.umd.edu/](http://mrsec.umd.edu/)

Professor and Director: Ellen Williams

Part of a national network of NSF-funded Materials Research Centers, faculty activities in MRSEC's mandate include materials research, industrial collaborations and educational outreach. Faculty research focuses on polarization dynamics in ferroelectric thin films, surface nanostructures-from fluctuations to driven systems and metal oxides with high spin polarization. MRSEC actively encourages undergraduate participation in their research program through participation in independent study, special projects and internships under faculty supervision and pays special attention to encouraging women and minorities to enter science.

**Center for Superconductivity Research**

Physics Building, 301-405-6129

[www.csr.umd.edu/](http://www.csr.umd.edu/)

Professor and Director: Richard L. Greene

The Center for Superconductivity Research (CSR) conducts interdisciplinary research in the fields of superconductivity, magnetism, ferroelectricity, the synthesis and characterization of advanced materials, the development of scanning-probe microscopes, and quantum computing. Their work impacts technology areas such as communications, digital and analog electronics, medical instrumentation, and computers. The CSR consists of approximately 12 scientists who are also teaching faculty members in the Departments of Physics, Electrical Engineering, Chemistry, or Materials science, as well as another 18 scientists and engineers who are visitors, post-docs, or staff members. Approximately 30 graduate students are working on their research dissertation projects with members of the CSR faculty. The CSR is dedicated to supporting undergraduate research, with more than 20 undergraduates doing research projects each year.

**COLLEGE OF EDUCATION (EDUC)**

Benjamin Building

Office of Student Services: 301-405-2344

E-mail: [coe-student-services.umd.edu](mailto:coe-student-services.umd.edu)[www.education.umd.edu](http://www.education.umd.edu)

Dean: Edna Szymanski

The College of Education is a professional college committed to advancing the science and art of teaching/learning, including the practices and processes which occur from infancy through adulthood in both school and non-school settings. The College's mission is to provide preparation for current and future teachers, counselors, administrators, educational specialists, and other related educational personnel, and to create and disseminate the knowledge needed by professionals and policy makers in education and related fields.

The College is organized into six departments, three of which offer undergraduate majors in teacher education: the Department of Curriculum and Instruction, which offers elementary and secondary education programs; the Department of Human Development and Institute for Child Study, which offers an early childhood program; and the Department of Special Education. Enrollment in the professional teacher education programs in the three departments is limited to those who meet the selective admission requirements specified below.

Only students who have been fully admitted to the teacher education programs are permitted to enroll in the professional education course sequences. Students with other majors who have an interest in the area of education may wish to enroll in a variety of other courses offered by the College that deal with schooling, human development, teaching/learning styles, and interaction processes. Students with majors in the Arts and Sciences who have an interest in teaching may wish to consider one of the multiple options for secondary education listed below.

In carrying out its mission, the College is committed to a society which is open to and supportive of the educational aspirations of the widest population of learners, and to continuous research and evaluation in relation to teaching and learning in a multicultural, high-tech world. At times, students may be invited to participate actively with graduate students and faculty members in research undertakings and evaluation processes. Students make use of Educational Technology Services, the micro-teaching laboratory, and professional development in school settings.

In addition to the CORE program requirements, education majors have the opportunity to complete classes in the arts, sciences and/or humanities. In the teacher education courses, students develop professional skills through active experiences in the college classroom and participate in exploring, learning and practicing with children and teachers in classrooms in the community.

**Secondary Education Program Options**

The College of Education has multiple pathways for students who are interested in teaching at the secondary level.

The **Dual Major** option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the

requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling.

The **Minor in Secondary Education** provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15-18 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing or completing the minor desires to enter an education track, the candidate must apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education approved program option. Some of the courses students take to complete the Minor in Secondary Education may also be applicable in certification options at the graduate level offered through the Department of Curriculum and Instruction. These students should consult with an advisor in the Department of Curriculum and Instruction to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.

The **Certificate Program** requires completion of an academic major, including coursework specific to meet certification standards in the certificate area, and a bachelor's degree in an approved academic content area, plus the completion of a certificate program in secondary education to meet requirements in UM's approved program for MSDE certification. Selected coursework from the Minor in Secondary Education may be taken prior to admission to the Certificate Program option.

The **Five-Year Integrated Master's with Certification Program**, which is intended for content majors entering the junior or senior year, is for talented students with a minimum GPA of 3.0 who seek to combine undergraduate studies in the content area and professional education as a foundation for a focused professional year at the graduate level leading to secondary-level certification in the subject field and the Master's of Education degree. As undergraduates, admitted students complete their baccalaureate degrees with a major in the relevant content area and a minimum of 12 credits in professional education studies related to teacher certification requirements. In their fifth year, they enroll in a full-year internship and complete graduate-level professional studies that make them eligible for teacher certification and the master's of education degree.

Detailed information about these secondary education program options is available at the College of Education Website, [www.education.umd.edu/studentinfo](http://www.education.umd.edu/studentinfo).

**Admission to Teacher Education Professional Course Work**

Applicants to the University of Maryland who have declared an interest in education are admitted to a department in the College. All majors must meet the selective admission requirements for full admission into the College of Education in order to enroll in course work in the professional teacher education degree program.

For full admission into a teacher education major, a student must (1) complete the English and math lower-level fundamental studies (six credits) with a grade of C or better; (2) earn 45 semester hours with an overall cumulative grade point average of at least 2.5 on a 4.0 scale; (3) submit a personal goal statement that indicates an appropriate commitment to professional education; (4) have prior experiences in the education field; (5) submit three letters of recommendation/reference; (6) submit a signed copy of the College of Education Technical Standards Acknowledgement Form, and (7) have passing scores on the Praxis I. Admission application forms are available in Room 1204 of the Benjamin Building. Only those who are admitted are able to enroll in the professional education sequence. An overall grade point average of 2.5 must be maintained after admission to Teacher Education to continue in the professional education programs. A Teacher Education Appeals Board reviews appeals from students who do not meet the admissions, advancement, or retention criteria. Consult the Student Services Office (Room 1204, Benjamin) for policies and procedures regarding appeals.

Criteria for admission to the Teacher Education program apply to any teacher preparation program offered by the University of Maryland. Thus, students desiring a major in music or physical education should apply to the College of Education for admission to the professional program in Teacher Education. Students who are not enrolled in the College of Education but who, through an established cooperative program with another college, are preparing to teach must meet all admission,

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scholastic and curricular requirements of the College of Education. The professional education courses are restricted to degree-seeking majors who have met College of Education requirements for admission and retention.

### Gateway Requirements for Early Childhood and Elementary Education Programs

The Early Childhood and Elementary Education programs are Limited Enrollment Programs, which admit students on a space-available basis. In addition to the requirements for admission to teacher education that are listed above, early childhood and elementary education majors must meet the following gateway requirements:

- (1) completion of a four-credit CORE laboratory physical science, a four-credit CORE laboratory biological science, Elements of Numbers and Operations (MATH 212), and Elements of Geometry and Measurement (MATH 213) with a minimum cumulative GPA in these four courses of 2.7
- (2) completion of Introduction to Teaching (EDCI 280) or Exploring Teaching in Early Childhood (EDHD220) with a grade of B or better
- (3) passing scores on the Praxis I: Academic Skills Assessments (Students will be required to meet the individual cut-off scores for each of the three Praxis I assessments. A composite score will not be accepted for admission.)

Students admitted to the University as freshmen may be directly admitted to the Early Childhood or Elementary Education programs through the end of the schedule adjustment period, second semester, freshman year. It is anticipated that no more than 50% of the available places in each program will come from these groups. In the event that the number of qualified applicants exceeds the available program slots, the students with the most competitive records from high school will gain direct admission to the College of Education. Students who are admitted to campus, but not directly admitted to Education, will be advised in the Division of Letters and Sciences.

At the time of admission, each student directly admitted into the College of Education will enter into a contract that states the requirements for maintaining enrollment, including the time or credit level by which the gateway requirements must be completed.

All other prospective early childhood and elementary education majors may apply for admission during the Spring of the year in which they complete 60 credits including the coursework and gateway admission criteria listed above. Students with advanced credit (60 or more hours) may apply for admission when they meet the gateway requirements. Applications will be reviewed in the Spring, and students who have completed the gateway requirements will be admitted competitively based on GPA, on a space-available basis. The minimum admission GPA for internal and external transfers will be 3.0 for Elementary Education and 2.75 for Early Childhood. Students with the required gateway courses and lower grade point averages will be considered as space is available.

Students may be granted admission to the early childhood or elementary education limited enrollment programs only once. Therefore, once a student has been admitted to the limited enrollment program, if the student is later dismissed for failure to complete the gateway requirements in a timely manner, the student may not reapply to the program.

Detailed information regarding admission to the Teacher Education program, including the gateway requirements for Early Childhood or Elementary Education, is available in the Student Services Office, Room 1204 Benjamin (301-405-2344).

### College of Education Technical Standards

All candidates in the UM professional preparation programs are expected to demonstrate that they are prepared to work with children and youth in educational settings. This preparation results from the combination of successful completion of university coursework and field/internship experiences and the demonstration of important human characteristics and dispositions that all educators should possess. These characteristics and dispositions, the *College of Education Technical Standards*, are grouped into four categories: Communication/Interpersonal Skills, Emotional and Physical Abilities, Cognitive Dispositions, and Personal and Professional Requirements.

Technical standards serve several important functions, including, but not limited to: (a) providing information to those considering preK-12 and community professional careers that will help such students in their career decision-making; (b) advising applicants of non-academic criteria considered in admissions decisions made by the University's preK-12 and community professional preparation programs; (c) serving as the basis for feedback provided to students in these programs regarding their progress toward mastery of all program objectives; and (d) serving as the basis for the final assessment of attainment of graduation requirements and recommendation for certification.

Candidates in the undergraduate teacher preparation programs will be required to submit a College of Education Technical Standards Acknowledgement Form as part of the College's selective admissions review in the sophomore or junior year. Self-assessments of candidates and faculty evaluations of students on the technical standards also will occur during each field/internship experience. Students will be monitored and given feedback throughout the program. At specified points, students will be notified of inadequacies that may prevent them from progressing through their program. Documentation and consensus regarding the student's functioning will be sought before any action is taken. Candidates who experience deficiencies in any areas will be encouraged to seek appropriate professional help from university or other sources. If the problem seems to be beyond remediation, continuation in professional programs, graduation or recommendation for certification may be denied.

Technical standards may be met with, or without, accommodations. The University complies with the requirements of Section 504 of the Rehabilitation Act and the Americans with Disabilities Act of 1990. Therefore, the College of Education will endeavor to make reasonable accommodations with respect to its technical standards for an applicant with a disability who is otherwise qualified. For detailed information on the College of Education Technical Standards, see [www.education.umd.edu/studentinfo/teacher\\_certification/forms/technicalstndrdsolicy.doc](http://www.education.umd.edu/studentinfo/teacher_certification/forms/technicalstndrdsolicy.doc)

### Yearlong Internship (Student Teaching)

The yearlong internship, which is the culminating experience in the teacher preparation program, takes place in a collaborating school (i.e., partner school, PDS – Professional Development School). The yearlong internship consists of one semester of methods and one semester of student teaching. Each teacher candidate's internship will vary according to the unique attributes of their teacher education program. All internships will provide teacher candidates with the opportunity to integrate theory and practice through a comprehensive, reality-based experience. The yearlong internship is arranged through the College of Education in collaboration with the school site coordinators (i.e., PDS Coordinators) and the designated schools in the partnership.

The yearlong internship is a full-time commitment. Interference with this responsibility because of employment or course work is strongly discouraged. Teacher candidates assigned to schools for this internship are responsible for their own transportation and living arrangements and should be prepared to travel to whichever school has been assigned. **Student teaching requires a special fee. Please refer to the Schedule of Classes under Financial Information: Fees.**

In order to receive a yearlong internship placement, all teacher candidates must make application the semester prior to the beginning of the methods portion of the internship year. Prospective student teachers must have been admitted to Teacher Education and have completed all prerequisites. Prior to assignment, all students in teacher preparation programs must have: (1) maintained an overall grade point average of at least 2.5 with a minimum grade of "C" in every course required for the major; (2) satisfactorily completed all other required course work in their program; (3) received a favorable recommendation from their department; (4) attained qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments; (5) applied for a year-long internship placement through the College of Education during the semester prior to the internship year; (6) received favorable ratings from prior supervised experiences in school settings; (7) received favorable evaluations on the College of Education Technical Standards; and submitted a criminal history disclosure statement. In addition, state law gives the local school to which the student teacher is assigned the discretion to require a criminal background check prior to placement. Early Childhood Education students must have a certificate indicating freedom from tuberculosis and proof of immunization.

## College of Education Repeat Policy

All registrations in the student teaching portion of the year long internship, regardless of whether a student withdraws or takes a leave of absence, will be counted as an attempt under the campus repeat policy. Only two registrations will be allowed. After two registrations, further attempts at student teaching must be approved by the department and the school-system professionals involved in the teacher candidate's internship experience. This policy applies only to students in the College of Education during the student teaching portion of the year-long internship.

## Graduation Requirements

The College of Education confers the degrees of Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) depending on the amount of liberal arts study included in a particular degree program. Minimum requirements for graduation are 120 semester hours. Specific departmental program requirements for more than the minimum must be fulfilled.

In addition to the university's general education requirements (CORE) and the specific requirements for each curriculum, the College requires that all majors complete a Foundation of Education course (e.g., EDPL 301) and, depending upon the teacher education major, six to twelve semester hours of reading course requirements. A grade of C or better is required in all pre-professional and professional course work required for the major. An overall grade point average of 2.5 must be maintained after admission to Teacher Education. A grade of S is required in the student teaching portion of the yearlong internship. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Technical standards and attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Detailed information about the Praxis assessments is available in the Student Services Office, Room 1204 Benjamin.

Exceptions to curricular requirements and rules of the College of Education must be recommended by the student's advisor and department chairperson and approved by the Dean.

## Accreditation and Certification

All bachelor's-degree teacher preparation programs are accredited by the National Council for Accreditation of Teacher Education and have been approved by the Division of Certification and Accreditation of the Maryland State Department of Education. Accreditation provides for reciprocal certification with other states that recognize national accreditation.

The Maryland State Department of Education issues certificates to teach in the public schools of the state. In addition to graduation from an approved program, the Maryland State Department of Education requires satisfactory scores on the Praxis I and II exams for certification. At the time of graduation, the College informs the Maryland State Department of Education of the graduate's eligibility for certification. Under Maryland law, criminal background checks may be required and considered by the State Department of Education in the awarding of teaching certification, and by employers before granting employment in the teaching field. Certification may be denied or revoked for individuals who have been convicted of crimes of violence and/or child abuse.

The Maryland State Department of Education (MSDE) requires completion of additional courses in reading. Students in secondary, pre-K-12 (Art, Music and Physical Education), and secondary special education must complete a six credit sequence. Students in early childhood, elementary and early grades special education must complete a twelve credit sequence. Check with your department advisor for information on meeting these requirements.

## College of Education Title II Institutional Data on Teacher Preparation

The College of Education pass rates for the Title II reporting period for the 2004-2005 academic year indicated that we exceeded or met the statewide pass rate in all categories. When the data were summarized, the College had a 100% pass rate; the statewide average was 96%. (Institutional pass rates: Basic Skills – 100%; Professional Knowledge – 100%; Academic Content Areas – 100%; Special Populations – 100%) Data tables reporting single-assessment institutional pass rates, aggregate institutional pass rates, and summary pass rates are available through the College website, [www.education/umd.edu](http://www.education/umd.edu). Information on the number of students enrolled and the student teaching experiences is highlighted below:

- Total number of students enrolled during 2004-2005: **1471**
- Total number of students in programs of supervised student teaching during academic year 2004-2005: **403**
- Total number of supervising faculty for the teacher preparation program during 2004-2005: **48**
- The student teacher/faculty ratio. **8.4 students per faculty member**
- The average number of hours per week required of student participation was **40 hours**. The total number of weeks of supervised student teaching required is **16 weeks**. The total number of hours is **640 hours**.
- The teacher preparation program is currently **approved** by the state.
- The teacher preparation program is **not** currently designated as “low-performing” by the state as defined by section 208(a) of the HEA of 1998.
- The teacher preparation program is currently designated as “at risk of being designated as ‘low performing’ by the state” as defined by section 208(a) of the HEA of 1998.

## Special Resources and Opportunities

The College of Education offers many special resources and facilities to students, faculty, and the community:

Center for Accelerating Student Learning  
Center for Children, Relationships and Culture  
Center for Education Policy and Leadership  
Center for Human Services Development  
Center for the Study of Assessment Validity and Evaluation  
Center for Young Children  
Connections Beyond Sight and Sound  
Educational Policy Reform Research Institute  
Institute for the Study of Exceptional Children and Youth  
International Center for Transcultural Education  
K-16 Partnership and Development Center  
Maryland Assessment Research Center for Education Success (MARCES)  
Maryland Institute for Minority Achievement and Urban Education  
Maryland Literacy Research Center  
Mathematics and Science Teaching Centers  
Mid-Atlantic Center for Mathematics Teaching & Learning  
National Center on Education, Disability, and Juvenile Justice  
National Reading Research Center

## College of Education Honors Program

Undergraduate teacher education majors meeting certain scholastic requirements may participate in the College of Education Honors Program. The objective of this program is to examine the field of education at levels of depth and breadth that go beyond that provided by any one teacher preparation sequence.

The program consists of three components: group, cross-disciplinary, and individual study. The Honors Program represents an excellent springboard for students with aspirations to on to graduate school. For further information contact Dr. Christy Corbin (1117H, Benjamin Building, 301-405-7793).

## College Park Scholars—Advocates for Children

College Park Scholars is an innovative two-year living/learning program for academically talented students. Admission is by invitation. Students attend weekly, faculty-led colloquia, which engage students in discussion and debate with prominent experts in the field.

The College Park Scholars Advocates for Children Program involves students in advocacy efforts targeting a broad range of social, educational, policy and justice issues affecting diverse children, families and communities. The Advocates program is structured so that students become informed in areas of personal interest that relate to children, families and communities. They then learn to translate their knowledge into advocacy for social justice and change. Advocacy involvement includes political lobbying, grassroots organizing and service activities in schools and communities.

For more information on the College Park Scholars: Advocates for Children Program, visit 1125 Cumberland Hall or phone 301-314-2777.



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### The Student Services Office

1204 Benjamin Building, 301-405-2344

The Student Services Office provides academic advising for education students regarding admission, orientation, registration, graduation, and certification. At other times, students who have been admitted to the College of Education receive academic advising through their departments. Students are required to complete an academic audit in the Office of Student Services upon admission to the professional teacher education degree program. Information about the Praxis assessments and the College of Education Scholarships is also available in Student Services.

### University Credentials Service, Career Center

3100 Hornbake Library, 301-314-7225

[www.CareerCenter.umd.edu](http://www.CareerCenter.umd.edu)

All seniors graduating in the College of Education are encouraged to complete a credentials file with the Career Center. Credentials consist of student teaching evaluations and recommendations from academic and professional sources. An initial registration fee is required and enables the Career Center to send a student's credentials to interested educational employers, as indicated by the student. Students may also file credentials if completing teacher certification requirements or advanced degrees and if interested in teaching, administrative or research positions in education.

Other services available through TERP (The Employment Registration Program) Online include **job listings** in public and private schools and institutions of higher learning, **on-campus interviews** with in-state and out of-state school systems, and **resume referral** to employers interested in hiring education majors. Information and applications from school systems throughout the country, job search publications, and various employment directories are available in the Career Center.

### Educational Technology Services

0234 Benjamin Building, 301-405-3611

Educational Technology Services helps the College advance the effective use of technology in support of student learning. The Center provides a range of technology and media resources and services to faculty and students. The Center also offers professional development courses, technology planning, consulting assistance, and other outreach services to educators and policy makers throughout the state and region. A number of research, development, and demonstration activities in educational technology are also conducted through the Center's grants and contracts with federal, state, and private funding sources.

### Center for Mathematics Education

2226 Benjamin Building, 301-405-3115

The Center for Mathematics Education provides a mathematics laboratory for undergraduate and graduate students. Occasionally there are tutoring services for children and adolescents. These services are offered in conjunction with specific graduate and undergraduate courses in elementary and secondary school mathematics. Center faculty are engaged in research in mathematics education, serve as consultants to school systems and instructional publishers, and provide in-service teacher education in addition to graduate degree programs.

### Center for Young Children (CYC)

Center for Young Children Building, 301-405-3168

The Center for Young Children is part of the Institute for Child Study/Department of Human Development in the College of Education. It offers a creative learning experience for children three, four, and five years old whose parents are affiliated with the University. The Center engages in child study, curriculum development, and teacher training. Its research and observation facilities are available to parents, faculty, and other persons concerned with the care and education of young children.

### Science Teaching Center

2226 Benjamin Building, 301-405-3161

The Science Teaching Center offers undergraduate and graduate courses and programs in science teaching and in science education research. Center faculty conduct research in science learning and instruction, at levels from elementary school to college, as well as contribute to local, state, and national science education reform efforts.

## Student and Professional Organizations

The College sponsors chapters of Phi Delta Kappa; the Teacher Education Association of Maryland Students (TEAMS), a state/national education association; the Student Assembly, a student governance organization; and Kappa Delta Pi, an honor society in education. The Mary McLeod Bethune Society is a pre-professional organization concerned with minority issues and education. A Chapter of the Council for Exceptional Children is open to undergraduate and graduate students in Special Education. The Plan of Organization for the College of Education calls for undergraduate student representation on both the College of Education Assembly and College Senate. These organizations assume a critical role in policy development for the College of Education. The Assembly meets at least once a year during the fall semester for its annual meeting. Senate meetings typically occur once a month during the fall and spring semesters. Six full-time undergraduate students are elected at-large as voting members of the Assembly. At least one representative from each of the departments with undergraduates serves on the Assembly. Of the six Assembly members, one is elected to serve as a delegate to the College of Education Senate. Students interested in receiving further information about the College Assembly or Senate should contact the Office of Student Services, Room 1204 Benjamin.

In several departments there are informal organizations of students. Students should contact the individual departments or, in the case of College-wide groups, the Student Services office, for additional information regarding these organizations.

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## A. JAMES CLARK SCHOOL OF ENGINEERING (ENGR)

1124 Glenn L. Martin Hall (formerly Engineering Classroom Building),

[www.engr.umd.edu](http://www.engr.umd.edu)

Professor and Dean: Nariman Farvardin

Associate Dean: Gary A. Pertmer

Undergraduate Advising and Academic Support: 301-405-3855

Co-op and Career Services: 301-405-3863

Center for Minorities in Science and Engineering: 301-405-3878

Women in Engineering: 301-405-3931

International Programs: 301-405-3857

The mission of the Clark School of Engineering at the University of Maryland is to provide quality engineering education, to conduct strong research programs, to foster a close partnership with industry and government, and to provide related service to the campus community and the community at large. A major focus of the School's activities is to provide a quality engineering education with sufficient scope to include the basic and specialized engineering training necessary to the current and emerging needs of society. The School has related responsibility to contribute to the advancement of knowledge by conducting research at the cutting edge of science and technology. Since science and technology are rapidly advancing, the School also has a professional responsibility to provide continuing education programs so the practicing engineer can remain effective. The School faculty and administration also sees as part of its mission, an obligation to serve the needs of the campus community and the community at large in the spirit of collegial cooperation.

Engineers also occupy an intermediary position between scientists and the public because, in addition to understanding scientific principles, they are concerned with the timing, economics, and values that define the use and application of those principles. With this in mind the School fosters a close partnership with industry and government, and also reaches out to both the campus community and the community at large with its services.

### Direct Admissions Requirements

1. Admission to the Clark School of Engineering is limited. Applicants are reviewed and will be admitted directly on a competitive basis. Evaluation is based on high school grades, standardized test scores, activities, leadership and demonstrations of potential to succeed. An applicant may select any of the majors offered within the School. An applicant also has the option of entering as an Undecided Engineering major and will typically choose a degree program in the first year.
2. National Merit and National Achievement Finalists and Semifinalists, Maryland Distinguished Scholar Finalists, and Banneker/Key Scholars are admitted directly to the School.

**45–Credit Review**

Directly admitted freshmen will be subject to an academic review at the end of the semester in which they attain 45 University of Maryland credits. In order to successfully complete the review, students must have an overall GPA of 2.0 and have completed ENES 100 and the following sequence of Gateway requirements: MATH 141, PHYS 161, and CHEM 113 or CHEM 135 with a grade of 2.0 or better.

Only one repeat of a single course to the set of Gateway courses, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of “W” (withdrawn) is earned is counted as an attempt. Students who fail to meet these requirements by the semester in which they attain 45 University of Maryland credits may be dismissed from the Clark School and may not reapply.

**Transfer Admission****Direct Admissions Requirements**

Internal and External Transfer students will be directly admitted to the Clark School if they meet the Gateway requirements, MATH 141, PHYS 161, CHEM 113 or CHEM 135 with a grade of 2.0 or better, have completed Fundamental Studies English, have completed at least one Humanities or Social Studies course, and have a minimum cumulative GPA of 3.0, and who have not previously been admitted to the Clark School of Engineering. Only one repeat of a single course to the set of Gateway courses, either at the University of Maryland or at any other university or college, will be considered to meet the review requirements. A course in which a grade of “W” (withdrawn) is earned is counted as an attempt. Students may apply on or before the semester in which they attain 45 earned credits.

Internal and External Transfer students who do not meet the Direct Admissions Requirements but have completed the Gateway requirements may apply and be considered for admission on a competitive basis.

**Appeal Process**

All students may appeal. Students directly admitted as freshmen who are dismissed because of failure to meet Gateways or to be in good academic standing at 45 credits may appeal in writing directly to the Associate Dean for Education in the Clark School. All other students who are denied admission may appeal to the Office of Admissions of the University.

**Special Note**

Students with a previous B.A. or B.S. degree will be admitted to the Clark School of Engineering with a minimum GPA of 3.0 and a completion of MATH 140, MATH 141, CHEM 113 or CHEM 135, and PHYS 161 with a grade of 2.0 or higher in each.

**Graduation Requirements**

Structure of Engineering Curricula: Courses in the normal curriculum or program and prescribed credit hours leading to the degree of Bachelor of Science (with curriculum designation) are outlined in the sections describing each department in the Clark School of Engineering. No student may modify the prescribed number of hours without special permission from the Dean of the School. The courses in each curriculum may be classified in the following categories:

1. Courses in the CORE Liberal Arts and Science Studies Program.
2. Courses in the physical sciences, mathematics, chemistry, physics.
3. Related technical courses, engineering sciences and other courses approved for one curriculum but offered by another department.
4. Courses in the major department. A student should obtain written approval for any substitution of courses from the department chair and the Dean of the School. The courses in each engineering curriculum, as classified below, form a sequential and developmental pattern in subject matter. In this respect, curricula in engineering may differ from curricula in other colleges. Some regulations which are generally applicable to all students may need clarification for purposes of orderly administration among engineering students (see the Academic Regulations in chapter 4). Moreover, the Clark School of Engineering establishes policies which supplement university regulations.

**School Regulations**

1. The responsibility for proper registration and for satisfying stated prerequisites for any course must rest with the student as does the responsibility for proper achievement in courses in which the student is enrolled. Each student should be familiar with the provisions of this catalog, including the Academic Regulations.
2. Required courses in mathematics, physics, and chemistry have highest priority. It is strongly recommended that every engineering student register for mathematics and chemistry or mathematics and physics each semester until the student has fully satisfied requirements of the Clark School of Engineering in these subjects.
3. To be eligible for a bachelor's degree in the Clark School of Engineering, a student must have an overall average of at least a 2.0 and a grade of C (2.0) or better in all engineering courses (courses with an EN prefix). Responsibility for knowing and meeting all graduation requirements in any curriculum rests with the student.
4. In addition to the requirement for a C (2.0) or better in all EN courses, all students who begin college-level work, either at the University of Maryland or any other institution in the Spring 2005 semester or later, must receive a grade of C (2.0) or higher in all technical courses (e.g. mathematics, physics, etc) used to satisfy major requirements.
5. A course taken at UM in which a grade has been earned may not be repeated via transfer from another institution.
6. All students are required to complete a number of general education courses and must follow the university's requirements regarding completion of the general education (CORE) Program. Consult the Academic Regulations section of this catalog for additional information. Engineering students who began college-level work (either at the University of Maryland or at other institutions) during the Fall 1989 semester or later are required to complete a junior-level technical writing course regardless of their performance in freshman English classes. This represents a School policy, not a University-wide policy.
7. All degree programs in the Clark School of Engineering require a minimum of 120 credits plus satisfaction of all department, School, and University general education (CORE) program requirements. Students should be aware that for all currently existing engineering programs the total number of credits necessary for the degree exceeds 120 by some number that depends on the specific major.

Curricula for the various engineering departments are given in this catalog to illustrate how the programs can be completed in four years. These curricula are rigorous and relatively difficult. Surveys have shown that only about one-third to one-half of the students actually receive an engineering degree in four years. The majority of students (whether at Maryland or at other engineering schools nationwide) complete the engineering program in four and one-half to five years. It is quite feasible for a student to stretch out any curriculum; this may be necessary or desirable for a variety of reasons. However, students should seek competent advising in order to ensure that courses are taken in the proper sequence.

All students are urged to request a senior audit form in the Clark School of Engineering, Office of Undergraduate Advising and Academic Support at least two semesters before graduation to review their academic progress and discuss final graduation requirements.

**Advising**

Advising is mandatory for all students in the Clark School. Advising is provided by the Office of Undergraduate Advising and Academic support, located in Room 1124 Glenn L. Martin Hall, 301-405-3855, and is available by appointment Monday through Friday from 8:30 a.m. to 4:30 p.m. Walk-in advising is also available at some times during the week. Appointments for other hours can be made with a special request. When a student is starting his or her lower level major courses, typically in the first semester of the second year, advising is done primarily in the student's department. Refer to the individual program for additional information.

**Departments and Degrees**

The Clark School of Engineering offers the degree of Bachelor of Science in the following fields of study: Aerospace Engineering, Biological Resources Engineering (see also College of Agriculture and Natural Resources), Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Fire Protection Engineering, Materials Science and Engineering, Mechanical Engineering, B.S. Engineering (Engineering Option and Applied Science Option). Except for the Applied Science Option of the B.S. Engineering degree, all of the above programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

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### The Freshman-Sophomore Years

The freshman and sophomore years in engineering are designed to lay a strong foundation in mathematics, physical sciences, and the engineering sciences upon which the student will later develop a professional program during the upper division (junior and senior) years. During the first two years, students are introduced to the concepts of engineering design and work in multidisciplinary teams. The School course requirements for the freshman and sophomore years are similar for all students, regardless of their intended academic program, thus affording the student maximum flexibility in choosing a specific engineering specialization.

### Engineering Sciences

Engineering Science courses represent a common core of basic material offered to students of several different departments. All freshman and sophomore students of engineering are required to take ENES 100. Other ENES courses, 102, 220, 221, and 230, are specified by the different departments or taken by the student as electives. The responsibility for teaching the engineering science courses is divided among the engineering departments. In addition to the core courses noted above, several courses of general interest to engineering or non-engineering students have been given ENES designations. See the List of Approved Courses in chapter 8 for further descriptions of these courses.

### Freshman Curriculum

See individual department requirements in chapter 7. Entering freshman math placement is determined solely by performance on the University math placement exam and not on the Math SAT score. Placement in MATH 115 or lower will delay by a semester eligibility to take certain engineering courses.

### Sophomore Year

No later than the sophomore year, a student should select an academic degree program (Aerospace, Biological Resources, Chemical, Civil, Computer, Electrical, Fire Protection, Mechanical, or Materials Science and Engineering) and this department assumes the responsibility for the student's academic guidance, counseling, and program planning from that point until the completion of the degree requirements of that program as well as the School. For the specific requirements, see the curriculum listing in each engineering department.

### Dual Degree Program

The Dual Degree Program is a cooperative arrangement between the Clark School of Engineering and selected liberal arts colleges which allows students to earn undergraduate degrees from both institutions in approximately five years. A student in the Dual Degree Program will attend the liberal arts college for approximately three academic years (minimum 90 semester hours) and the Clark School of Engineering at the University of Maryland for approximately two academic years (minimum hours required determined individually approximately 60 semester hours).

Dual degree candidates may participate in any of the baccalaureate programs in the Clark School of Engineering.

At the present time the participating institutions in Maryland and the District of Columbia are American University, Bowie State University, Columbia Union College, Coppin State College, Frostburg State University, Morgan State University, College of Notre Dame of Maryland, St. Mary's College of Maryland, Salisbury State University, Towson State University, Western Maryland College, Trinity College, and Washington College. Also participating in the program are Kentucky State University, King College in Tennessee, Shippensburg State University in Pennsylvania, and Xavier University in Louisiana.

### Engineering Abroad

Preparation for practicing engineering in the global marketplace is increasingly important for new engineers and also for engineers to advance in their career. The Clark School offers opportunities for students to study abroad and/or intern abroad at locations in Europe, Asia, North and South America, and Australia during their college career. Students may elect to study abroad for one or two semesters and to intern abroad for eight weeks or more. Research experiences abroad are also available. Some study/internship abroad programs require fluency in the native language, while other programs offer opportunities in English. Faculty advisors and the study abroad advisor will help students select an appropriate program and course work.

For further information on study and/or internship abroad programs, students should contact the director of undergraduate recruitment and special programs in the Clark School at 301-405-3857 or visit our web site at [www.eng.umd.edu/international](http://www.eng.umd.edu/international).

### Minors

**Minor in International Engineering:** 15 to 21 credits. Students complete the course "International Business Cultures for Engineering and Technology" plus additional courses in language, culture studies, or internationally related students, and an international engineering experience abroad. Contact the director of Undergraduate Recruitment and Special Programs (301-405-3857) or visit the web at [www.eng.umd.edu/international](http://www.eng.umd.edu/international) for more information. Students who fulfill minor requirements will receive a notation on their official transcript.

**Minor in Project Management:** 15 credits. A basic understanding of project management is becoming increasingly important for engineers. Such knowledge enables them to contribute immediately to employers, and to advance their careers. In addition to a strong engineering background, there is significant need for engineers to understand the fundamentals of managing projects in order to effectively participate as members of project teams. Students who successfully complete minor requirements will receive a notation on their official transcript. Contact John Cable, Project Management Minor Advisor ([jcable@umd.edu](mailto:jcable@umd.edu)) or visit the web site [www.pm.umd.edu/undergrad\\_programs/undergrad\\_minor\\_courses/index.html](http://www.pm.umd.edu/undergrad_programs/undergrad_minor_courses/index.html) for more information.

### Engineering Transfer Programs

Most of the community colleges in Maryland provide one- or two-year programs which have been coordinated to prepare students to enter the sophomore or junior year in engineering at the University of Maryland. These curricula are identified as Engineering Transfer Programs in the catalogs of the sponsoring institutions. The various associate degree programs in technology do not provide the preparation and transferability into the degree curricula as the designated transfer programs. A maximum of one-half of the degree credits (approximately 60 semester hours) may be transferred from a two-year community college program.

There may be some courses which are not offered by the schools participating in the engineering transfer program. Students should investigate the feasibility of completing these courses in summer school at the University of Maryland before starting their junior course work in the fall semester.

### Financial Assistance

The Clark School offers scholarships to talented undergraduate engineering students. This is a competitive scholarship program with scholarships awarded for merit. Financial need and a variety of other factors may also be considered.

The **Benjamin T. Rome Scholarship** is a full-ride scholarship awarded to a new freshman student each year. The Rome Scholarship covers all expenses (tuition and fees, room and board) plus a book allowance and a stipend. The award is renewable for three additional years provided the recipient maintains good academic standing and makes progress toward an engineering degree.

To be considered for all engineering scholarships, students must complete the online scholarship application. The deadline for new freshman is March 1st and the deadline for current or new transfer students is May 31st. For more information contact Jane Fines, Director of Undergraduate Recruitment & Special Programs, 301-405-3857 or visit the web at [www.eng.umd.edu/scholarships](http://www.eng.umd.edu/scholarships).

### Honors

The Clark School offers an Engineering Honors Program that provides eligible students the opportunity to pursue an enriched program of studies that will broaden their perspectives and increase the depth of their knowledge. Engineering students meeting all of the following criteria are eligible to apply:

1. Upper fourth of engineering juniors and seniors
2. Junior standing or 60 applicable credits
3. Completion of at least one semester at UMCP

## A. James Clark School of Engineering 71

The requirements for completing the program are as follows:

1. A Honors Research Project which often can be used as a technical elective, a written report, and an oral presentation to a faculty panel of the EHP;
2. Successful completion of both Engineering Honors Seminars (ENES 480 and ENES 481, 1 credit hour each);
3. Maintenance of a GPA to remain in the upper third of the class.

For more information, visit the web at [www.eng.umd.edu/current/current\\_honors.html](http://www.eng.umd.edu/current/current_honors.html)

### Research and Service Units

#### The Center for Minorities in Science and Engineering

1134 Glenn L. Martin Hall, 301-405-3878

Director: Rosemary L. Parker

The Center is dedicated to increasing the enrollment and graduation rates of African American, Hispanic, and Native American students majoring in engineering. The Center provides a complete package of services designed to assist students from pre-college through completion of the undergraduate degree. Services include academic advising, tutorial assistance, scholarship information, the BRIDGE Program, outreach programs, job information and support of student organizations.

#### Engineering Co-op and Career Services

1131 Glenn L. Martin Hall, 301-405-3863

[co-op@eng.umd.edu](mailto:co-op@eng.umd.edu), [www.coop.eng.umd.edu](http://www.coop.eng.umd.edu)

Whether it's to wire robots in a car plant, monitor a waste water management project, or reformulate cough syrup for a pharmaceutical company, the Engineering Co-op and Career Services Office assists students in finding cooperative education (co-op) and internship positions in private industry and the government. Students may work full-time or part-time during the fall, spring and/or summer semesters. Co-op and internship positions complement classroom learning and provide students the opportunity to gain professional level experience, build mentoring relationships, integrate theory and practice, confirm career choices, and help finance their education.

The first step in the application process is to attend an orientation session that focuses on internship/co-op search strategies. After writing a resume and having it critiqued by our office, students are given permission to upload their resume into our database eLink of engineering jobs and on-campus interviews. To assist students in their search we offer a wide variety of workshops on topics such as effective resumes, interview strategies, professionalism, career fair preparation, salary negotiation, and advanced job search techniques. Our website lists the current schedule of workshops. In addition, students have the opportunity to meet employers by participating in our career fairs, employer information sessions, and special job search presentations conducted by engineering recruiters. Visit our website for more information: [www.coop.eng.umd.edu](http://www.coop.eng.umd.edu).

#### Office of Undergraduate Advising and Academic Support

1124 Glenn L. Martin Hall, 301-405-3855

Director: Jenna Dolan

[engrhlp@deans.umd.edu](mailto:engrhlp@deans.umd.edu)

The Office of Undergraduate Advising and Academic Support Office provides a broad variety of services to assist students during their collegiate careers. Individual advising may focus on a number of student related issues including: course selections, schedule planning, university policy interpretations, career choices, social and personal adjustments and academic concerns. The office also clears students for graduation, evaluates transfer credits from other institutions, provides orientation to new students, and is instrumental in helping students process administrative forms. The staff works closely with other campus offices to identify resources that address the various needs of our students.

#### Women in Engineering Program

1134 Glenn L. Martin Hall, 301-405-3931

Director: Paige E. Smith

The Women in Engineering Program (WIE Program) is dedicated to increasing the enrollment, retention, and graduation rates of females in the School, as well as identifying and addressing this group's unique needs. The Program provides a comprehensive set of initiatives designed to encourage and assist women students to become successful professional engineers.

Services offered include research fellowships, professional mentoring program, information listserv, website, scholarship database, first year mentoring program, workshops on careers, outreach programs, speakers, and support of women engineering organizations.

### Undergraduate Research Programs

Undergraduate research programs allow qualified undergraduate students to work with research laboratory directors in departments, thus giving students a chance for a unique experience in research and engineering design. Projects in engineering allow undergraduate students to do independent study under the guidance of faculty members in an area of mutual interest. For more information contact your department or the Dean's office.

#### Engineering Information Technologies (EIT)

0123 Glenn L. Martin Hall, 301-405-0174

Executive Director: James F. Zahniser, 301-405-3885

[www.it.umd.edu](http://www.it.umd.edu)

Keeping pace with the latest developments in the area of information technologies worldwide, the Clark School of Engineering provides a state-of-the-art computing environment that will be the standard for engineers in the years ahead. Faculty and students have access to computer workstations with a wide range of engineering software and multi-media enabled classrooms with the latest presentation capabilities. In addition, EIT provides access and support on the latest tools and services for online collaboration, presentation technologies, and distance learning.

#### Distance Education Technology and Services

2104 Martin Hall, phone: 301-405-4910 - Fax: 301-314-9639

[www.dets.umd.edu](http://www.dets.umd.edu)

Distance Education Technology and Services, DETS, provides distance education technology and support service to the A. James Clark School of Engineering and the UMCP campus. We serve over 500 students per year by providing graduate and undergraduate courses in engineering and other related fields. In addition, we also provide technical, services to the campus such as video conferencing, video capturing, satellite services and more. For further information, please reference the DETS web site at [www.dets.umd.edu](http://www.dets.umd.edu).

### Student Organizations

#### Professional Societies

Each of the engineering departments sponsors a student chapter or student section of a national engineering society. The student chapters sponsor a variety of activities including technical meetings, social gatherings, and School or University service projects. All students are strongly encouraged to join one or more of these chapters. These organizations are American Helicopter Society, American Institute of Aeronautics and Astronautics, American Institute of Chemical Engineers, American Nuclear Society, American Society of Agricultural Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers, Black Engineers Society, Institute of Electrical and Electronics Engineers, Minerals, Metals and Materials Society, Society of Asian Engineers, Society of Automotive Engineers, Society of Fire Protection Engineers, Society of Hispanic Engineers, and Society of Women Engineers.

#### Honor Societies

The Clark School of Engineering and each of the engineering departments sponsor honors societies. Nominations or invitations for membership are usually extended to junior and senior students based on scholarship, service and/or other selective criteria. Some of the honors organizations are branches of national societies; others are local groups: Tau Beta Pi (College Honorary); Alpha Epsilon (Agricultural Engineering); Alpha Nu Sigma (Nuclear Engineering); Chi Epsilon (Civil Engineering); Eta Kappa Nu (Electrical Engineering); Omega Chi Epsilon (Chemical Engineering); Pi Tau Sigma (Mechanical Engineering); Salamander (Fire Protection Engineering); and Sigma Gamma Tau (Aerospace Engineering).

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### COLLEGE OF HEALTH AND HUMAN PERFORMANCE (HLHP)

3310 HLHP Building, 301-405-2438; Records, 301-405-2357  
[www.hhp.umd.edu/](http://www.hhp.umd.edu/)

Dean: Robert S. Gold  
Associate Dean: Jerry Wrenn  
Assistant Dean: Viki Annard

The College of Health and Human Performance provides preparation leading to the Bachelor of Science degree in the following professional areas: Physical Education (K-12), Community Health and Family Studies. The College also offers curricula in Kinesiological Sciences. In addition, each department offers a wide variety of courses for all university students. These courses may be used to fulfill the general education requirements and as electives.

Programs combining research, service and instruction are provided by the Children's Health and Developmental Clinic, the Adults' Health and Developmental Program, and the Sports Medicine and Physical Fitness Center. More detailed information regarding these program offerings is available through the individual departments.

### Advising

At the time of matriculation and first registration, each student is assigned to a member of the College faculty who acts as the student's academic advisor. These assignments are made by the individual departments and depend upon the student's chosen major. Students who are enrolled in the College, but are undecided regarding their major, should contact the Assistant Dean, 3310 HLHP Building, 301-405-2473.

### Departments and Degrees

The College of Health and Human Performance offers the baccalaureate in the following fields of study: Physical Education, Kinesiological Sciences, Community Health and Family Studies. The degree of Bachelor of Science is conferred upon students who have met the conditions of their curricula as herein prescribed by the College of Health and Human Performance.

Each candidate for a degree must file a formal application with the Records Office according to the scheduled deadlines for the anticipated semester of graduation.

### Honors

**Phi Alpha Epsilon.** Honorary Society of the College of Health and Human Performance. The purpose of this organization is to recognize academic achievement and to promote professional growth by sponsoring activities in the fields of physical education, kinesiology, family studies and health, and related areas.

Students shall qualify for membership at such times as they shall have attained junior standing in physical education, kinesiology, family studies, or community health, and have a minimum overall average of 3.5 and a minimum of 24 credits at the University of Maryland, College Park. For additional information, please contact the Student Service Center, 301-405-2357.

### Special Resources and Opportunities

#### Gymkana Troupe

1120 HLHP Building, 301-405-2566  
Director: Scott Welsh

For over 50 years, the University of Maryland Gymkana Troupe has been influencing young people to live healthy lifestyles. Founded at the University of Maryland College Park campus in 1946, the troupe has traveled throughout Maryland and neighboring states promoting drug-free living. Each of its 50+ members pledges themselves to be drug-free. Through their role-modeling and unique gymnastic performances, they have influenced hundreds of thousands of people to join them in living a drug-free life. The troupe, which is open to all University of Maryland students of all abilities, is considered a one-of-a-kind organization and is believed to be the only collegiate exhibitional gymnastic troupe actively touring the United States. One uniqueness of the Gymkana program is in its use of peer role models who share their experiences and their message of healthy living with others. Students influencing students to avoid drugs is the heart of Gymkana's program.

### Research and Service Units

#### Center on Aging

2367 HLHP Building, 301-405-2469  
Director and Professor: Dr. Laura B. Wilson  
Associate Professor: Lori Simon-Rusinowitz

The Center on Aging stimulates and supports aging-related activities within existing departments, colleges, and schools throughout all of the various institutions of the University System of Maryland. The Center coordinates the Graduate Gerontology Certificate (master's and doctoral levels), the university's first approved graduate certificate program. The Center assists undergraduate and graduate students interested in the field of gerontology and helps them to devise educational programs to meet their goals. It is a research center working in health and aging policy, lifelong learning and civic engagement, disability and aging, behavioral and social aspects of aging, and health service delivery systems. It also conducts community education programs, assists faculty in pursuing research activities in the field of aging, conducts conferences on adulthood and aging-related topics, provides on- and off-campus technical assistance to practitioners who serve older adults and sponsors the University of Maryland Legacy College, Legacy Leadership Institutes, the University of Maryland Retirees Association, and Retired and Senior Volunteer Programs International (RSVPI).

For further information on any of the Center's activities call, write or visit the Center on Aging.

Course Code: HLHP

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### COLLEGE OF INFORMATION STUDIES

4105 Hornbake Building, 301-405-2033  
E-mail: [lbscgrad@deans.umd.edu](mailto:lbscgrad@deans.umd.edu)  
[www.clis.umd.edu](http://www.clis.umd.edu)

Professor and Dean: Jennifer J. Preece

The College of Information Studies offers degree programs for individuals interested in careers in information services and management. At the master's level, students may specialize in several fields, including archival studies, geographic information systems, health information services, school library media services, and science and technology information systems. Graduates pursue careers in a wide range of information agencies and positions. The College has dual degree programs with the History Department, and Geography Department. The Master of Library Science degree is accredited by the American Library Association.

The Ph.D. degree prepares students for careers in research and teaching in the information field and in management of large information organizations.

While the College does not currently have an undergraduate major, it offers courses at the undergraduate level. These courses are suggested for students wishing to develop skills in locating, analyzing, and evaluating information and students seeking to learn more about career opportunities in the information field. The Master of Information Management degree program was initiated in 2003.

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### THE PHILIP MERRILL COLLEGE OF JOURNALISM (JOUR)

1117 Journalism Building, 301-405-2399  
[www.journalism.umd.edu](http://www.journalism.umd.edu)

Professor and Dean: Thomas Kunkel  
Acting Assistant Dean: Crane  
Assistant Dean and Director of Undergraduate Programs: Reid  
Assistant Dean for External Affairs: Quine  
Assistant Dean Fiscal Affairs: Ringer  
Professors: Beasley, Broder, Cleghorn, Franklin (Merrill Chair in Journalism), Gurevitch, Johnson (Knight Chair Journalism), Roberts, Stepp, Thornton (Richard Eaton Chair in Broadcast Journalism)  
Associate Professors: Barkin, Hanson, McAdams, Moeller, Newhagen, Zanot  
Emeriti: Blumer, Geraci, Hiebert, Holman, Martin  
Assistant Professor: Bonner  
Lecturers: Clayton, Crane, Flynn, Harvey, Katcef, Huffman, Rogers, Swift  
Internship Director and Executive Director, American Association of Sunday and Feature Editors: Fuchs  
Curator, Humphrey Journalism Fellows: Fleenor  
Director of Casey Journalism Center for Children and Families: Frerking  
Executive Director MSPA (Maryland Scholastic Pres. Assn.): Payne

Editor, American Journalism Review: Rieder  
Director of the Knight Center for Specialized Journalism: Horner  
Executive Director J-Lab: The Institute for Interactive Journalism: Schaffer  
Assistant to the Dean and Director of Communication: Sheehan

The Philip Merrill College of Journalism is widely considered one of the best journalism programs in the nation, blending a mix of prize-winning journalists, communication scholars and nationally recognized professional programs. The school's mission is simple: to produce the best possible journalists for leading newspapers, magazines, TV, radio and online news outlets. Recent graduates are editors, reporters and producers at The New York Times, Washington Post, CBS, Los Angeles Times, CNN, America Online and many of the nation's other top news organizations.

Students learn from a faculty that includes Pulitzer Prize winners David S. Broder, Haynes Johnson and Jon Franklin, former CBS White House correspondent Lee Thornton and former Philadelphia Inquirer Executive Editor Gene Roberts. The faculty also include such internationally recognized media and communications scholars as Michael Gurevitch and Maurine Beasley.

Located less than 10 miles from the news capital of Washington, students participate in internships during the academic year at The Washington Post, The (Baltimore) Sun, CNN, and a wide array of Washington news bureaus. In the summer, students intern at top news organizations around the country. Broadcast news students produce and anchor a 30-minute nightly news show that reaches more than 400,000 households in suburban Washington on the College-operated UMTV station, and online students work on Maryland Newline, a political and public policy Web-based news magazine. Advanced broadcast, online, and print students enroll in Capital News Service, an intensive full-time reporting program in Washington and Annapolis. Students also participate in some of the school's many professional programs, including the monthly magazine American Journalism Review and the Casey Journalism Center for Children and Families.

## Admission to the Philip Merrill College of Journalism

### Freshman Admission and the 45-Credit Review

First-time entering freshmen will gain admission to the Philip Merrill College of Journalism directly from high school on an available basis. Early application is encouraged. Freshmen admitted to the program will have access to the necessary advising through their initial semesters to help them determine if Journalism is an appropriate area for their interests and abilities. Academic and career advising is provided to journalism students throughout their academic career by qualified academic counselors and the College's faculty.

Freshmen who are admitted directly to Journalism will be subject to a performance review by the time they have completed 45 credits. To meet the provisions of the review, these students must complete: (1) The two, first-year Fundamental Studies courses: ENGL 101 and mathematics; (2) at least nine credits of Distributive Studies coursework, selected in consultation with an advisor; (3) ENGL 101 and JOUR 201 with grades of C or higher (*JOUR 100 is a pre or co-requisite of JOUR 201*); and (4) a minimum cumulative GPA of 2.0. Students must prove grammar skills competency through attainment of a minimum of a 2.0 in JOUR 181 prior to enrolling in JOUR 201. Students who do not meet these requirements will not be allowed to continue in the LEP and will be required to select another major. *In addition freshmen are expected to complete JOUR 200 by the end of their first year.*

### Transfer Admission

These requirements apply to new transfer students to the University as well as on-campus students.

**Note: No more than 12 transfer credits of communications courses from an accredited journalism program may be approved by the College to be applied toward the degree. Transfer students who wish to receive credit for JOUR 201 based on work done in a non-accredited journalism program must pass a proficiency exam.**

In order to be admitted to Journalism, transfer students will be required to meet the following set of gateway requirements: (1) The two, first-year Fundamental Studies courses: ENGL 101 and mathematics; (2) at least nine credits of Distributive Studies coursework, selected in consultation with an advisor; (3) completion of ENGL 101 and JOUR 201 with grades of C or higher. Enrollment in JOUR 201 requires proof of grammar skills competency through the attainment of at least a 2.0 in JOUR 181; and (4) attainment of a 2.8 GPA for all college-level work attempted.

The Test of Standard Written English (TSWE) was phased out at the end of the 2005-06 academic year. Students who failed to pass the TSWE (with a minimum score of 52 on their second attempt) prior to the end of the 2005-06 academic year are not eligible to take JOUR 181 to demonstrate grammar skills competency.

### Appeals

Students who are unsuccessful in gaining admission to Journalism at the freshman or transfer level, and believe they have extenuating or special circumstances that should be considered, may appeal in writing to the Office of Undergraduate Admissions. The student will be notified in writing of the appeal decision.

Students admitted to Journalism as freshmen that do not pass the 45-credit review but believe they have special circumstances that should be considered, may appeal directly to the College.

For further information, contact The College's Student Services office at 301-405-2399.

## Degrees

The Philip Merrill College of Journalism offers the B.A., M.A., M.J. and Ph.D. degrees.

## Graduation Requirements:

Graduation requirements apply to all Journalism majors, including double-major and double-degree students.

Students are required to earn a minimum of 122 credits. Accrediting regulations require 80 credits of a student's course work be in areas other than mass communication (i.e. no COMM or JOUR courses.) A minimum of 65 of those 80 credits must be earned in liberal arts designated courses. A grade of C or better must be earned in JOUR 201 and JOUR 202/262 prior to taking courses for which they serve as prerequisites. Students must have a C average in their major.

A grade of C is required in JOUR 320 or 360 prior to enrolling in the supervised internship JOUR 399. Accrediting regulations also limit the number of experiential credits that can be applied toward a degree in Journalism. Prior approval must be obtained to receive degree credit for any experiential courses numbered 386 or 399 (repeatable up to 3 credits).

Students are also required to demonstrate abstract thinking skills. Majors are offered a language option, a mathematics option, or a combination of the two.

A supporting area consisting of four upper-level courses in a concentrated field is also required of Journalism majors. Students must also complete a minimum of 58 credits at the upper level of which no more than 28 can be journalism or mass communications credits. Finally, in addition to University graduation requirements, Journalism majors must complete additional liberal arts course work with one course each in economics, government and politics, American history, public speaking, and one course in anthropology, psychology or sociology.

Required courses for all Journalism majors, regardless of whether journalism is a student's primary or secondary major:

#### A. Non-journalism course requirements.

1. Abstract thinking skills requirement: Completion of a minimum of nine credits.
  - a. Three credits must be one statistics course from the following list: AREC 484, BIOM 301, BMGT 230, CCJS 200, CNEC 400 ECON 321, EDMS 451, GEOG 305/306, PSYC 200, SOCY 201, TEXT 400, URSP 350, or a more advanced statistics course.
  - b. A minimum of six credits through one or a combination of the following options. Should a student choose to combine the options, at least one language course must be at the intermediate level:
    - i. Language-any language skills course(s). Up to two courses with at least one course at the intermediate level and no more than one course at the introductory level. (High school equivalency does not satisfy this requirement.)
    - ii. Math and Computer Science - up to two courses:
      - a. Any mathematics (MATH) course numbered 111 or higher.
      - b. Any computer science (CMSC) course.
2. Public Speaking: one course from COMM 100, 107, 200, 230 or 250.

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3. History: one course from HIST 156, 157.
4. Behavioral or Social Science: ANTH 260; PSYC 100; SOCY 100 or 105.
5. Economics: ECON 200 or 201.
6. Government and Politics: GVPT 100 or 170
7. Supporting Area: Four upper-level (numbered 300 or higher) courses for a minimum of 12 credits in a supporting field (cannot be in Communication).

### B. Journalism course requirements:

|  | Credit       |
|--|--------------|
| JOUR 100 Professional Orientation .....  | 1            |
| JOUR 200 History, Roles and Structures .....                                   | 3            |
| JOUR 201 News Writing and Reporting .....                                      | 3            |
| JOUR 202 News Editing<br>or JOUR 262 News Editing for Broadcast .....          | 3            |
| JOUR 300 Ethics .....  | 3            |
| One of News Writing and Reporting II .....                                     | 3            |
| JOUR 320 Print<br>JOUR 360 Broadcast .....                                     | 9            |
| Advanced Skills: .....   | 9            |
| Any nine JOUR hours numbered 321-389 .....                                     | 3            |
| JOUR 350 Graphics or JOUR 352—Online .....                                     | 3            |
| JOUR 399 Supervised Internship .....   | 1-3          |
| JOUR 400 Law of Mass Communication .....                                       | 3            |
| Journalism and Society: Any three-credit JOUR course<br>numbered 410-469 ..... | 3            |
| Research: Any three-credit JOUR course numbered 470-479 .....                  | 3            |
| <b>Total Credits .....</b>   | <b>38-40</b> |

**Note: Students pursuing a broadcast track will be required to complete JOUR 361 pending campus approval.**

## Advising

The Office of Student Services, 1117 Journalism Building, 301-405-2399, provides academic advising to majors on an appointment basis. Send e-mail inquiries to [jourug@deans.umd.edu](mailto:jourug@deans.umd.edu).

## Honors and Awards

Although no departmental honors program currently exists within the College, academically outstanding students are recognized through Kappa Tau Alpha, the Journalism academic honor society.

**Hodding Carter III Community Service Award.** Awarded at each May commencement to the journalism student exhibiting outstanding service to his or her peers, campus, and extended communities.

**Sigma Delta Chi/Society of Professional Journalists Citation.** Awarded annually to an outstanding journalism student.

**Kappa Tau Alpha Citation.** Awarded at each commencement to the journalism student earning the highest academic achievement for all undergraduate study.

### College Park Scholars Media, Self & Society

CPS in Media, Self and Society – Director: Dr. Kalyani Chadha  
Associate Director: Ken Joseph

Co-sponsored by the Philip Merrill College of Journalism, the Media, Self and Society Program is one of the living/learning programs offered by the College Park Scholars Program. This two-year program for incoming freshman is designed to give students the opportunity to undertake a critical examination of media organizations, institutions and practices as well as gain practical experience through involvement in a media-related activity of their choice.

For more information see College Park Scholars Program section in this catalog.

## Field Work and Internship Opportunities

Supervised internships are essential. Penny Bender Fuchs is the Director of the Journalism Internship Program, 3118 Journalism Building, 301-314-2631.

The Annapolis and Washington bureaus of the Capital News Service are staffed by students and supervised by college instructors. Students cover state and legislative news for client papers around the region. Broadcast students have the opportunity to participate in Capital News Service in the Annapolis Bureau, developing stories and packages for UMTV. Students are required to report breaking news under deadline, write profiles, and cover state agencies. This is a full-time, semester-long program, on site at one of two bureau locations. Students interested in web journalism can report, write and edit for Maryland *Newsline*, an online magazine. This bureau is located in the College's online facility. Capital News Service is coordinated by Chris Harvey, Journalism Building, 301-314-2696.

For students interested in broadcast news, opportunities to gain experience with cable news programs are presented within the curriculum and by volunteering at the campus television station, UMTV. The campus radio station is WMUC. The Diamondback, the third most-read college paper in the nation, is the campus daily newspaper. Student newspapers of interest to special populations include the *Eclipse*, *Black Explosion*, and *Mitzpeh*.

## Student Organizations

The college sponsors student chapters of the Society for Professional Journalists, the National Association of Black Journalists, and the Radio and Television News Directors' Association. These organizations provide students with opportunities to practice skills, establish social relationships with other students both on and off campus, and meet and work with professionals in the field.

For information on the organizations listed, contact the Student Services Office, 1117 Journalism Building, 301-405-2399.

## Accreditation

The Philip Merrill College of Journalism became accredited in 1960 by the Accrediting Council on Education in Journalism and Mass Communications. Standards set by the council are generated from professional and academic ethics and principles. This accrediting body ensures the liberal arts foundation of a journalism curriculum, limiting professional and skills courses to one-third of a student's academic program.

Course Code: JOUR

Note: For coursework in Intercultural Communication, Mediated Communication, Negotiation and Conflict Management, Persuasion and Attitude Change, Political Communication, Public Relations and Rhetoric and Public Discourse see the Department of Communication in Chapter 7.

## LETTERS AND SCIENCES (LTSC)

For information see Office of Undergraduate Studies.

## SCHOOL OF PUBLIC POLICY (PUAF)

2101 Van Munching Hall, 301-405-6330

[www.puaf.umd.edu](http://www.puaf.umd.edu)

Professor and Dean: Steve Fetter

The School of Public Policy provides graduate-level, professional education to individuals interested in careers in public service. The core curriculum emphasizes economic and quantitative approaches to policy analysis, political institutions and processes, ethics and public sector finance. There are several specializations offered as part of four academic programs: international security and economic policy; management, finance and leadership; environmental policy; or social policy.

The School offers separate degrees for early-career and mid-career college graduates. Those with a minimum of five years' full-time professional experience in the policy process may seek the 36-credit Master of Public Management (M.P.M.) degree. Others may enroll in the 48-credit Master of Public Policy (M.P.P.) program which can be completed in two years by full-time students. Eligible students in the College of Behavioral and Social Sciences can enroll in a five-year BA/MPP program. The School also offers joint degree programs with the Smith School of Business (M.P.P./M.B.A.), the School of Law (M.P.P./J.D.), and the Graduate Program in Sustainable Development and Conservation Biology; and accepts a small number of Ph.D. candidates each year.

For further information, please check our website: [www.puaf.umd.edu](http://www.puaf.umd.edu).

**OFFICE OF UNDERGRADUATE STUDIES**

2130 Mitchell Building, 301-405-9363  
[www.ugst.umd.edu](http://www.ugst.umd.edu)

Associate Provost and Dean: Donna B. Hamilton  
 Associate Dean: Katherine McAdams  
 Associate Dean: Scott Wolpert  
 Assistant Dean: Lisa Kiely  
 Assistants to the Dean: James Newton, Laura Slavin

Through its many programs, the Office of Undergraduate Studies serves all undergraduate students at the University and the faculty and staff that support the undergraduate mission of the campus. The Office of Undergraduate Studies is the primary division at the University of Maryland responsible for leadership and oversight of undergraduate curricular and co-curricular education. The responsibilities of Undergraduate Studies include:

- Academic planning and policy
- CORE/General Education
- Enrollment management
- Academic advising
- Living-learning programs
- Academic enrichment experience programs
- Interdisciplinary and individual studies programs

Primary listings for programs that report to the Office of Undergraduate Studies appear in this section (except where noted).

**Academic Achievement Programs**

2110 Marie Mount Hall, 301-405-4736  
 Executive Director: Dr. Jerry L. Lewis  
[www.aap.umd.edu](http://www.aap.umd.edu)

The Academic Achievement Programs (AAP) primarily provides resources and opportunities for low-income individuals, first generation college students, disabled students and traditionally under-represented students. Academic Achievement Programs include the Intensive Educational Development (IED), and Educational Opportunity Center (EOC), the Ronald E. McNair Post-Baccalaureate Achievement Program, the Summer Transitional Program, and Student Support Services (SSS). EOC, McNair and SSS, which are part of the Federal TRIO program funded by the U.S. Department of Education, provide support services, to motivate and to prepare students from disadvantaged backgrounds for doctoral programs.

**Educational Opportunity Center (EOC)**

Mr. Andre Nottingham, Associate Director  
 301-429-5933

EOC is supported by a U.S. Department of Education grant primarily designed to assist adults 19 and over from low-income and first-generation backgrounds in pursuing post-secondary educational opportunities. UM-EOC predominantly serves inner-beltway communities in Prince George's County and provides academic and financial application assistance, counseling, and related services to its participants to improve post-secondary enrollment or re-enrollment.

**Intensive Educational Development (IED)**

Dr. Tilahun Beyene, Associate Director, AAP and Associate Director IED  
 301-405-4749

Funded by the State of Maryland, IED provides an array of comprehensive academic and tutorial services to first-year and second-year students who participate in the Summer Transitional Program (STP), first- and second-year eligible transfer students, and other eligible students enrolled in the general student body. Prospective students attempting to gain admission to the University by participating in this program are required to attend the six-week STP, designed to develop, expand and improve English, math, and study skills and assist in the transition from high school to the university. Continuing students are eligible for services as needed.

**Summer Transitional Program (STP)**

The Summer Transitional Program (STP) assists students in both their academic and personal adjustment to the University. Tutoring and skills enhancement in math, English, and college study strategies, coupled with enrollment in a selected three-credit university CORE course facilitate students' academic adjustment. In addition, students enroll in a one-credit orientation course and participate in weekly individual and/or group counseling sessions. The six-week STP is required of all students admitted to the University through SSS/IED.

**Ronald E. McNair Post-Baccalaureate Achievement Program**

Dr. Nthakoana Peko, Associate Director  
 301-405-4749

Designed principally for low-income, first-generation college juniors and seniors and/or students from underrepresented groups in specific graduate disciplines, the Ronald E. McNair Post-Baccalaureate Achievement Program is a federally funded research opportunity. The McNair program prepares students for graduate school, preferably at the doctoral level. The program offers assistance with the completion of graduate school and financial aid applications and preparation for graduate admissions tests. In addition, McNair offers a six-week summer research experience that affords students the opportunity to work intimately with faculty mentors on specific research projects, refine skills in written communications, computer applications, statistics and research methodology.

**Student Support Services (SSS)**

Dr. Alice N. Murray, Associate Director  
 301-405-4739

SSS is a U.S. Department of Education grant supported program geared toward low-income and first-generation college students. It works in conjunction with the IED Program. SSS provides academic and career advising, and tutoring to its students throughout their time at the university, with primary focus on first- and second-year students. It also provides financial aid application assistance, individual and group counseling, and leadership development workshops. In limited cases, SSS provides supplemental grant aid to eligible students in the program.

**Asian American Studies (AAS)**

1120 Cole Student Activities Building, 301-405-0996  
 Interim Director: Timothy J. Ng, Ph.D.  
[www.aast.umd.edu](http://www.aast.umd.edu)  
[aast@umd.edu](mailto:aast@umd.edu)

The Asian American Studies Program (AAS) provides students with the opportunity to study critically the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities, and cultures of Asian Americans as both distinctive from and connected to the broader themes of diversity, ethnicity, race, gender, and migration in the Americas. AAS offers an undergraduate certificate for students who wish to develop a specialization in Asian American studies alongside their degree pursuits.

The AAS Certificate is a 21 credit-hour complementary study component. Students earn the Certificate by successfully completing required AAS courses, elective courses, and an AAS capstone. The Asian American Studies Program offers a variety of special topics courses each semester that may count towards elective requirements. Special topics courses have included Asian American Leadership, Asian American Public Policy, Asian American Literature, and Asian American Sexualities. Students may choose either the independent research option or the experiential learning option for the AAS capstone requirement. Courses taken toward the Certificate may be cross-listed in other departments and some may satisfy CORE requirements and electives.

**Certificate Requirements:****A. AAS Core Courses (6 credits):**

1. Introduction to Asian American Studies (AAS 200)
2. Asian American History and Society (AAS 201)

**B. Elective Courses (12 credits):** Students may earn the 12 required elective credits by successfully completing any of a number of special topics courses AAS offers each semester. Elective requirements may also be satisfied through successful completion of courses offered through other departments or programs. Students must obtain approval from the AAS program director for courses outside of AAS offerings.

**C. AAS Senior Capstone (3 credits):** Students participate in a faculty-guided research project (AAS 388) or an experiential learning project such as an internship with an Asian American or Asian Pacific American organization (AAS 378).

**D. All courses toward Certificate must be completed with minimum grade of "C."** Students interested in earning the certificate should first schedule an advising appointment at the AAS office. Students in good standing may then officially enroll in the certificate program. While students may begin taking courses before they enroll in the certificate program, they should schedule an advising appointment as soon as possible.



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### Air Force Reserve Officer Training Corps (AFROTC) Program

Aerospace Studies Program, 301-314-3242  
2126 Cole Student Activities Building  
Director: Colonel Ernie Haendschke  
[www.afrotc.umd.edu](http://www.afrotc.umd.edu)

The Air Force Reserve Officer Training Corps (AFROTC) provides students the opportunity to earn a commission as a second lieutenant in the United States Air Force while completing their undergraduate degree.

#### Four-Year Program

The four-year program is composed of a General Military Course (GMC) and the Professional Officer Course (POC). During the first two years, students participate in the GMC and receive an introduction to the Air Force and the various career fields. Students enrolled in the GMC program incur no obligation and may elect to discontinue the program at any time. The final two years (POC) concentrate on the development of leadership skills and the study of United States defense policy. Students must compete for acceptance into the POC. Students in the four-year program who successfully complete the first two years of the program and are accepted into the POC program must attend four weeks of field training at a designated Air Force base during the summer following their sophomore year of college.

#### Two-Year Program

The two-year program option is a special program offered to entering juniors in specific technical and non-technical majors. The academic requirements for this program are identical to the final two years of the four-year program. Additionally, students are eligible to receive the same benefits. During the summer following their junior year, all candidates must attend six weeks of field training at a designated Air Force base. Students should start the application process no later than the January prior to joining the cadet corps.

#### Scholarships and Incentives

AFROTC scholarship programs provide anywhere between one-half, to three and a half-year scholarships to in-college students on a competitive basis. Scholarships are available in many fields. Scholarship recipients receive tuition, lab expenses, incidental fees, book allowance (currently \$600), and a non-taxable monthly allowance of a minimum of \$250 up to \$400 as a senior. All POCs are eligible for the monthly allowance. Any student accepted by the University of Maryland may apply for these scholarships. AFROTC membership is required to receive an AFROTC scholarship.

### Army Reserve Officer Training Corps (ROTC) Program

1150 Cole Student Activities Building, 301-314-9238  
Director: Lieutenant Colonel Dennis McFadden  
[www.armyrotc.umd.edu](http://www.armyrotc.umd.edu)

The Army Reserve Officer Training Corps offers students the opportunity to earn a commission as a Second Lieutenant in the United States Army (Active, Reserve, or National Guard) while completing their undergraduate degree.

#### Four-Year Program

The four-year program is composed of the Basic Leadership Course and the Advance Leadership Course. The first two years (Basic Course) consists of a general introduction to military customs and courtesies, soldier skills, communication skills, personal development, and introductory leadership skills. Students enrolled in the basic course incur no obligation and may discontinue the program at any time. In the final two years (Advanced Course), students concentrate on developing leadership skills in organizations. Students must have permission of the Director of Army ROTC to enroll in the advanced course. The Advanced Course requires five weeks of field training at Fort Lewis, Washington the summer after their junior year.

#### Two-Year Program

The two-year program is available to students with two years and a summer remaining in their university studies. The academic requirements for this program are identical to the Advanced Course in the four-year program, and students are eligible to receive the same benefits. During the summer preceding the junior year, students must attend five weeks of field training at Fort Knox, Kentucky. Students should start the application process for this option no later than January of their sophomore year.

#### Scholarships and Incentives

Army ROTC Scholarships are available for four, three or two years on a competitive basis. The scholarships are based solely on merit—not financial need. Those selected receive tuition and mandatory fees, a book allowance, and a non-taxable monthly allowance ranging from \$350-\$500 based on academic year.

#### Curriculum

Basic Leadership Course  
Freshman Year: ARMY 101 (fall) ARMY102 (Spring)  
Sophomore Year: ARMY 201 (Fall) ARMY 202 (Spring)

Advanced Leadership Course  
Junior Year: ARMY 301 (Fall) ARMY 302 (Spring)  
Senior Year: ARMY 401 (Fall) ARMY 302 (Spring)

All Army ROTC courses are open to any university student for credit whether or not he or she is enrolled as a cadet in the Army ROTC program.

### Beyond the Classroom

South Campus Commons, 301-314-6621  
Interim Director: Lisa Kiely  
[www.btc.umd.edu](http://www.btc.umd.edu)

Beyond the Classroom (BTC) is a living-learning program dedicated to preparing students for internships or service learning experiences in local governments or small non-profit organizations. The mission of BTC is to foster a community of students by enhancing professional preparation and cultivating civic engagement in individuals as they prepare to leave college and enter the workforce or begin graduate school. Students develop a professional portfolio in writing and oral communication skills. BTC is a two-semester program open to all students.

### Center for Teaching Excellence

0405 Marie Mount Hall, 301-405-9356  
Director: Spencer Benson  
[www.cte.umd.edu](http://www.cte.umd.edu)

The Center for Teaching Excellence supports departmental, individual and campus-wide efforts to enhance teaching and learning at the University of Maryland. The Center offers assistance to departments, faculty, graduate and undergraduate teaching assistants. The Center provides workshops, teaching assistant development, evaluation and support strategies for improving teaching and learning, individual consultations for faculty and graduate students, research on current teaching practices, and implementation of innovative teaching and learning strategies.

The Center also administers the Undergraduate Teaching Assistants program, a University-wide teaching and learning program for graduate teaching assistants, the Lilly Teaching Fellows program, the Instructional Improvement Grants program, and various Scholarship of Teaching and Learning programs.

### College Gateway Programs

Director: Shirley H. Morman  
3103 Turner Hall, 301-314-7763  
**Educational Talent Search:** [www.etsp.umd.edu](http://www.etsp.umd.edu)  
**ProjectLINKS:** [www.projectlinks.umd.edu](http://www.projectlinks.umd.edu)

#### Educational Talent Search

Educational Talent Search, a discretionary early intervention grant funded by the U.S. Department of Education, increases the college participation of low-income and first-generation college students by creating an academic pipeline from middle school to high school to baccalaureate study. Authorized by the Higher Education Act of 1965, Talent Search identifies needy students and helps them take advantage of the Educational Opportunity Grant Program, now known to as the Pell Grant. Based at and sponsored by the University since 1985, Talent Search identifies youth of extreme financial or cultural need with an “exceptional potential” for postsecondary education and encourages them to complete secondary school and undertake further education. It also publicizes the availability of student financial aid and encourages secondary school or college dropouts to reenter educational programs. Talent Search supplements other pre-college counseling and academic enrichment services. Program-based Talent Search Advisors work through selected Maryland schools, providing students from 6th-12th grades with a variety of services and information. The Talent Search Program also refers families to the Upward Bound Program and Upward Bound Math/Science Initiative Program for academic development and comprehensive counseling services.

**ProjectLINKS**

ProjectLINKS (linking information networks and knowledge to students), a distant education-distant learning pilot program, features homework support through an innovative online tutoring model for middle-school students. Through its summer academic enrichment programs, available only to Educational Talent Search program participants, ProjectLINKS offers resources in educational software, study skills, strategies for test taking and PSAT/SAT preparation. ProjectLINKS uses an instructional system that combines assessment and skills development focused on performance and instructional strategies that encourage students to work at their own level and pace.

**College Park Scholars Program (CPSP)**

1125 Cumberland Hall, 301-314-CPSP (2777)

Executive Director: Greig Stewart

[www.scholars.umd.edu](http://www.scholars.umd.edu)

College Park Scholars is a multi-disciplinary, two-year living/learning program in which academically and creatively talented freshmen and sophomores explore interests that enhance or complement their choice of academic major. Upon successful completion of the selected program, students receive a College Park Scholars citation on their transcript. Course requirements for the citations vary by program; visit the Scholars website for details: [www.scholars.umd.edu](http://www.scholars.umd.edu).

Innovative curricula plus public service, civic engagement and team projects, help prepare students for research and internship opportunities. Scholars may also apply to departmental or college honors programs in their junior year.

Admission to College Park Scholars is selective and by invitation. Upon invitation to Scholars, students indicate their preference from the following programs:

|                                    |                                      |
|------------------------------------|--------------------------------------|
| Advocates for Children             | International Studies                |
| American Cultures                  | Chemical and Life Sciences           |
| Arts                               | Media, Self, and Society             |
| Business, Society, and the Economy | Public Leadership                    |
| Earth, Life, and Time              | Science, Discovery, and the Universe |
| Environmental Studies              | Science, Technology, and Society     |

Students in each program attend weekly, faculty-led colloquia that encourage active discussion and debate. Other courses in the curriculum may be selected to satisfy general education (CORE) requirements. In the second semester of their sophomore year, students choose from independent research, service-learning projects, or internships both on and off campus for their Scholars' capstone experience.

The Program's focus on community offers many advantages. Program faculty maintain offices in Cambridge Community residence halls; this facilitates meeting with students. Several program faculty lead study-abroad experiences between the fall and spring semesters, or during the summer. Shared interests, classes, and residence halls help students to form study groups. Scholars also enjoy meeting guest speakers and having the opportunity to continue conversations outside the classroom. Program directors encourage students to pursue leadership opportunities in co-curricular activities, design and implement community service and social events, participate in recruitment activities, or serve on the Student Advisory Board.

For more information on any of the programs identified above, write to:

Executive Director, College Park Scholars  
1125 Cumberland Hall, University of Maryland,  
College Park, MD 20742-9331  
301-314-2777

**CORE Liberal Arts and Sciences Studies****Program (General Education Requirements)**

Office of the Associate Provost for Academic Affairs and Dean for Undergraduate Studies

2130 Mitchell Building, 301-405-9359

Director CORE Planning and Implementation: Laura Slavin

[www.ugst.umd.edu/core](http://www.ugst.umd.edu/core)

To earn a baccalaureate at the University of Maryland all students complete both a major course of study and a campus-wide general education program.

For more information, see Chapter 5: General Education Requirements.

**Division of Letters and Sciences**

1117 Hornbake Library

Interim Director: John Bowman

General Advising: 301-314-8418 or 8419

Pre-Professional Advising: 301-405-2793

Credit-By-Exam: 301-405-2793

[www.ltsc.umd.edu](http://www.ltsc.umd.edu)

Letters and Sciences is the academic home for students exploring a variety of fields before selecting a major, for post-baccalaureate students taking additional course work, and for non-degree seeking students taking undergraduate courses. Letters and Sciences may also serve as the academic home for students completing requirements for entry into a Limited Enrollment Program. Letters and Sciences advisors help students to select and schedule courses, plan academic programs, and learn about campus-wide resources. Letters and Sciences collaborates closely with college advising offices, academic departments, and programs across campus and provides a coordinated advising network that features:

**Choosing a Major**

Letters and Sciences students receive information about and referral to a wide range of academic programs and services including specialized workshop sessions. Letters and Sciences staff specialize in assisting students develop strategies and plans for entering Limited Enrollment Programs.

**Markets and Society**

Markets and Society is a by-invitation program for entering freshmen interested in exploring the world of business. The Markets and Society Program helps students to learn about the field of business, refine their career goals, and interact with other students who share their interests.

**Learning Communities**

Learning Community programs in the Division of Letters and Sciences focus on first-year students. They combine a one-credit seminar called "Introduction to the University" with one or more general education (CORE) courses. The seminars facilitate major and career exploration.

**Interim Advising Program**

Newly admitted transfer students with more than 60 credits, who were unsuccessful in gaining admission to a Limited Enrollment Program, receive advising and assistance from a Letters and Sciences professional staff member during their first semester on campus. For this group of students, the University waives the requirement that all students must declare a major by 60 credits.

**Pre-Professional Advising**

Letters and Sciences offers specialized advising for students interested in law and the health professions. For further information, see the section on "Pre-Professional Advising and Programs" in this catalog and visit [www.ltsc.umd.edu/lawhealth.html](http://www.ltsc.umd.edu/lawhealth.html)

**Global Communities**

Director: Kirsten Dabelko

International Education Service

3116 Mitchell Building, 301-314-7100

Office: 0119 Dorchester Hall

[www.globalcommunities.umd.edu](http://www.globalcommunities.umd.edu)

Global Communities provides undergraduate international and U.S. students with a living-learning environment that enhances their knowledge of the world, its cultures and people, along with complementing their academic studies. Diversity knows no borders, and an increasingly complex global society makes it imperative for students from all disciplines to learn intercultural skills in order to work and live in this new society. The program seeks to: create an awareness of cultural differences; develop the communication skills, which facilitate intercultural exchanges; understand varied cultural values and the expression of those values in diverse societies; and explore one's own culturally constructed identity. Dorchester Hall, where roommates often come from different cultures, offers a unique international environment where Global Communities students have an opportunity to apply immediately what they learn in the classroom to actual intercultural interaction in their residential experience.

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### Individual Studies Program (IVSP)

1117 Hornbake Library, 301-314-9962  
IVSP Coordinator: Jeff Kniple  
[www.ivsp.umd.edu](http://www.ivsp.umd.edu)

The Individual Studies Program (IVSP) is a degree-granting academic program under the direction of the Office of Undergraduate Studies. The program allows students to create new interdisciplinary curricula leading to the Bachelor of Arts or Bachelor of Science degree. Students draw primarily from the University of Maryland's course offerings to form an academic concentration not otherwise available to them at the institution. A written prospectus that defines the student's major and outlines the curriculum is required to apply to the program.

Students must seek the guidance and approval of a faculty mentor prior to having their prospectus reviewed by the Individual Studies Faculty Review Board. If approved, the courses agreed upon by the Faculty Review Board become the basis for the student's major requirements. These listed requirements from numerous academic departments, along with the CORE general education requirements, are analogous in most ways to the academic requirements given to students who select from the University's traditional majors. However, each student is required to design a unique program of study and defend it in order to be a part of IVSP.

Individual Studies students must complete a senior project and are encouraged to use internships or independent studies with faculty to supplement their work in the classroom. While IVSP programs are never vocational in nature, drawing from real-life experience as a supplement to the academic curriculum is generally encouraged. These projects often serve as a way for the students to develop academic connections among the multiple disciplines involved in their programs.

While IVSP gives students the opportunity to create a unique academic program focused on a specific area of study, using courses from multiple academic departments, it does not substitute for or replicate the educational goals of existing University programs, including the Limited Enrollment Programs (LEPs). IVSP programs may not include substantial numbers of courses from LEP departments.

Developing a successful IVSP prospectus takes time and usually involves several meetings to review and edit the draft prospectus. Interested students should contact the IVSP Coordinator and begin the application process early in their academic career. Working closely with the Coordinator and their prospective faculty mentor, students should plan to complete and submit their IVSP prospectus, preferably during their sophomore year, or in their junior year, before reaching 90 credits.

#### ***To be admitted into the Individual Studies Program the student must:***

1. Have a clearly defined academic goal that cannot be reasonably satisfied in an existing curriculum at the University of Maryland, College Park.
2. Have at least 30 earned college credits with at least 12 credits completed at College Park.
3. Have a minimum of a 2.5 GPA in each of their previous two semesters of college, and at least a 2.0 GPA overall.
4. Complete at least 30 additional credits beginning the term following admission to IVSP.
5. Identify an appropriate faculty mentor, preferably tenured or tenure track, with significant undergraduate education experience related to the field of study.
6. Complete a detailed plan of study (prospectus) which is approved by their faculty mentor and then approved by the Individual Studies Faculty Review Board. This proposal will include:
  - a. A clear statement of the central academic purpose for their major.
  - b. Specific course requirements including at least 27 credits of upper-division major coursework (300 & 400 level) beyond the IVSP courses: IVSP 317, IVSP 318, and IVSP 420.
  - c. The list of courses must include at least one writing-craft course, in addition to the CORE Fundamental Studies Introduction to Writing and Professional Writing requirements, selected from an approved list that is available from the Individual Studies staff.
  - d. A semester-by-semester plan for the completion of their undergraduate degree within a reasonable period of time.
7. Complete the IVSP Departmental Notification Form in order to notify academic units from which they will take three or more 300-400 level courses.

#### ***Following admission, students must:***

1. Earn a grade of C or better in all courses required in their IVSP program of study including IVSP 420, and a satisfactory grade in IVSP 317.
2. Complete mandatory advising sessions with their faculty mentor and the IVSP staff every semester, including a review of their semester-by-semester academic plan for completion of their IVSP program.
3. If not already completed, work towards immediate completion of the fundamental studies requirements for English composition and mathematics.

For more information, please visit the IVSP website at [www.ivsp.umd.edu/](http://www.ivsp.umd.edu/) or contact Jeff Kniple, IVSP Coordinator at 1117 Hornbake Library, 301-314-9962.

### Lesbian, Gay, Bisexual and Transgender Studies (LGBT)

1147 Tawes Fine Arts Building, 301-405-5428  
Director: Dr. Marilee Lindemann  
[www.lgbts.umd.edu](http://www.lgbts.umd.edu)

The Program in Lesbian, Gay, Bisexual and Transgender Studies (LGBT) offers an interdisciplinary undergraduate certificate designed to examine the lives, experiences, identities and representations of LGBT persons, those who are today described as having a minority sexual orientation or who are gender transgressive. Students study LGBT families and communities, cultures and subcultures; histories, institutions, languages and literatures; economic and political lives; and the complex relations of sexual minorities to the culture and experience of the gender conformant and (hetero)sexual majority. LGBT Studies is an interdisciplinary and multidisciplinary field, and promotes the application of new theories and methodologies (e.g., queer, feminist, critical race, and multicultural theories) to established disciplines, and it advances the generation of new knowledge within traditional fields of scholarship. Through study of sexual minorities, students gain an understanding of and respect for other differences in human lives such as age, ability, class, ethnicity, gender, race, and religion. With their faculty advisors, certificate candidates design a program that complements their major field of study.

#### **Certificate Requirements:**

##### **A. Core curriculum for the LGBT Certificate (15 credits)**

1. LGBT200 Introduction to Lesbian Gay Bisexual Transgender Studies
2. One of the following:
  - a. CMLT291/LGBT 291  
International Perspectives on Lesbian and Gay Studies
  - b. ENGL265/LGBT 265  
Introduction to Lesbian, Gay, and Bisexual Literature
3. One of the following:
  - a. LGBT 350  
People and Communication
  - b. PHIL407/LGBT 407  
Gay and Lesbian Philosophy
  - c. WMST494/LGBT 494  
Lesbian Communities and Differences
4. One of the following:
  - a. ENGL359/LGBT 359  
Special Topics in Lesbian, Gay, and Bisexual Literatures
  - b. ENGL459/LGBT 459  
Selected Topics in Sexuality and Literature
  - c. ENGL465/LGBT 465  
Theories of Sexuality and Literature
5. One of the following:
  - a. LGBT488  
Seminar in LGBT Studies
  - b. LGBT386  
Supervised Internship - LGBT Community Organizations

##### **B. Electives (6 credits)**

Students choose 6 hours of elective credits in consultation with their advisor in LGBT Studies. At least 3 hours of elective credits must be from upper division courses (i.e., those numbered 300 or above). Students are encouraged to choose electives to complement their knowledge of LGBT people and issues by exploring disciplines that contrast with the major field of study. Students may select elective courses from the list of core

courses above or from a list of approved courses. A student may also petition to have any other course fulfill this requirement by providing evidence, usually the syllabus, that a substantial amount of the course work, usually including a term paper, consists of LGBT material.

- C. Each student must obtain a grade of C or better in each course that is to be counted toward the certificate.

## Maryland Center for Undergraduate Research (MCUR)

McKeldin Library, 301-314-6786  
Director: Lisa Kiely  
[www.ugresearch.umd.edu](http://www.ugresearch.umd.edu)

The Maryland Center for Undergraduate Research (MCUR) is an initiative from the Office of the Dean of Undergraduate Studies Created as a resource for faculty and students, the Center serves as a clearinghouse for both on-campus and off-campus research opportunities for undergraduate students. Additionally, faculty members can share different models for incorporating undergraduate students into research programs, and ways of infusing undergraduate research into the curriculum.

Among the programs at the MCUR are the Undergraduate Research Assistant Program (URAP) and the Senior Summer Scholars (SSS). URAP provides an opportunity for students to work with faculty mentors on ongoing research projects. Experienced students who are rising seniors are encouraged to apply for funding through the Senior Summer Scholars program for summer study with a faculty member. Students new to research as well as students with previous research experience participate in this program.

## National Scholarships Office

0104 Armory, 301-314-1289  
Coordinator: Dr. Camille Stillwell  
[www.scholarships.umd.edu](http://www.scholarships.umd.edu)

The National Scholarships Office (NSO) is committed to helping eligible University of Maryland students identify, apply for, and win national scholarships and fellowships. The process of preparing an application for a scholarship or fellowship requires careful thought and preparation through each step of the process. Resources available through the NSO provide information and advising on the many national scholarships and fellowships.

The National Scholarships Office assists in the preparation of national scholarship applications including guidance on writing a personal statement, selecting faculty members to write letters of recommendation, and participating in mock interviews to help students prepare for personal interviews that are often a part of the application process.

## Orientation

1102 Cole Field House, 301-314-8217  
Director: Gerry Strumpf  
[www.orientation.umd.edu](http://www.orientation.umd.edu)

The goal of Orientation is to introduce new students to the University of Maryland community. The Orientation Office offers a wide range of transitional programming and services for students and their families as they prepare to attend the University of Maryland.

## New Student Orientation

Held prior to the semester a student enrolls at the University of Maryland, new student orientation for first-time freshman normally covers two days; orientation for new transfer students covers one day. During new student orientation, individuals meet with representatives from their academic college for advising and course scheduling. Undergraduate Orientation Advisors, introduce students to academic and student life at the University of Maryland, including student campus services and resources, and opportunities for involvement on campus.

## Parent Orientation

Parents of new University of Maryland students are strongly encouraged to attend a one-day program specifically designed to introduce them to the academic, social, and cultural opportunities of the university and to better prepare them for the issues that are likely to affect their son or daughter throughout their matriculation at the University.

## Faculty Forays

Faculty Forays focus on the continuing transition of parents. Offered to parents on the second day of freshman orientation, these one-day programs combine a trip to an area attraction with connections to other parents and a campus faculty or staff host.

## Introduction to the University Seminars

The Orientation Office coordinates new student seminar courses, UNIV 100 and 101. These courses introduce students to the world of higher education and, more specifically, to the University of Maryland. Course topics include career/major exploration, successful studying and test-taking strategies, diversity, and involvement within the university.

## Pre-College Programs

1101 West Education Annex  
Executive Director: Georgette Hardy DeJesus  
[www.precollege.umd.edu](http://www.precollege.umd.edu)  
Upward Bound Program, 301-405-6776  
Upward Bound-Higher-Educational Opportunities for Latino Achievers (UB-HOLA), 301-405-6776  
Upward Bound-Math and Science Regional Center (UB-MSRC), 301-405-1773

The University of Maryland Pre-College Programs in Undergraduate Studies is comprised of the following federally and state funded programs:

- The classic Upward Bound Program (UB)
- Upward Bound-Higher-educational Opportunities for Latino Achievers (UB-HOLA)
- Upward Bound-Math and Science Regional Center (UB-MSRC).

These programs generate the skills and motivation necessary for success in post-secondary education. They immerse high school participants in rigorous academic instruction, tutoring, counseling, and innovative educational experiences throughout the school year and during the six-week summer residential program. Pre-College Programs are part of the Federal TRIO Programs that provide educational opportunity outreach programs designed to motivate and support students from disadvantaged backgrounds.

The UB Programs are open to low-income and/or first-generation college bound high school students in grades 9 through 12, who demonstrate an academic need and want to pursue a four-year postsecondary education. Eligible students must attend target high schools in Prince George's and Montgomery Counties. High school principals, teachers, and counselors recommend students to the program.

Eligibility for HOLA Upward Bound requires that students attend Montgomery Blair, Wheaton, Richard Montgomery, High Point, or Bladensburg high schools.

The UB-MRSC is open to students in grades 10 through 12, who demonstrate an academic need and want to pursue post-secondary education programs in fields related to mathematics and science. UB-MRSC recruits high school students from Delaware, Maryland, Pennsylvania, Virginia, West Virginia, and the District of Columbia.

## University Honors Program

Anne Arundel Hall, 301-405-6771  
Director: Dr. Barbara L. Thorne  
[www.honors.umd.edu](http://www.honors.umd.edu)

The University Honors Program offers special educational opportunities and resources to students with exceptional academic talents. Honors students combine Honors course work with studies in their majors and elective courses to deepen their total educational experience. They broaden their intellectual horizons by selecting Honors (HONR) seminars and Honors versions of regular courses. Honors seminars offer small class size (capped at 20 students), academic experiences characterized by active participation, intensive writing, and outstanding faculty who encourage critical thinking and innovation. Most Honors seminars fulfill CORE (general education) requirements.

Students in the University Honors Program may earn an Honors Citation by earning 16 credits: 15 credits of Honors courses (at least nine of which must be in HONR courses) and a one-credit colloquium (either HONR 100 or HONR 200) and by maintaining an overall 3.2 GPA. Anne Arundel Hall, the Honors Living/Learning Center, houses 100 Honors students, the program offices, a scholar-in-residence, a computer lab, the Portz Library, seminar rooms, and lounges. Honors students also live and study together in Queen Anne's, Denton, Easton, and Ellicott Halls; many upperclassmen enjoy apartment-style housing in South Campus Commons.

## 80 Office of Undergraduate Studies

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Outstanding first-year entering students apply to the University through the normal process and receive invitations into the University Honors Program; transfer students with between 12 and 30 credits (excluding AP credits) may apply for admission to Honors. Honors Humanities [www.honorshumanities.umd.edu/](http://www.honorshumanities.umd.edu/)) and Gemstone [www.gemstone.umd.edu/](http://www.gemstone.umd.edu/)) are more specialized programs within University Honors; they are described under their own headings in this catalog. In addition to the University Honors Program, about 40 departments or colleges offer advanced, discipline-based Honors programs that provide enriched opportunities, typically involving work with faculty mentors on independent research projects. Most departmental and college Honors programs begin in the junior year; please contact them directly for the admission requirements.

## CHAPTER 7

# Departments, Majors and Programs

## ACCOUNTING

For information, consult the Robert H. Smith School of Business entry in chapter 6.

## AEROSPACE ENGINEERING (ENAE)

### A. James Clark School of Engineering

3181 Glenn L. Martin Hall, 301-405-2376

[www.aero.umd.edu](http://www.aero.umd.edu)

Professor and Chair: Fournay

Professors: Celi, Chopra, Flatau, Hubbard, Lee, Leishman, Lewis, Pines, Wereley

Associate Professors: Akin, Baeder, Sanner, Winkelmann, Yu

Assistant Professors: Atkins, Cadou, Humbert, Shapiro

Visiting Professors: Bowden, Korkegi, Nagaraj

Adjunct Professor: Tolson

Lecturers: Carignan, Filippone, Healy, Keller, Leach, Lilas, Lumelsky, Newsome, Smith, Van Wie

Emeriti: Anderson, Jones

### Department Mission Statement

The mission of the Department of Aerospace Engineering is, (1) to provide the highest quality education in state-of-the-art aerospace engineering principles and practices at undergraduate and advanced degree levels and through continuing education programs for practicing engineers, (2) to conduct research that will significantly advance the state of knowledge in the aerospace sciences and technologies, (3) to advance aerospace engineering practice and education through publications in the engineering and educational literature and through close relations with industry, government and other academic institutions, (4) to contribute to the advancement of the College of Engineering, the University of Maryland, and the state of Maryland.

### Department Educational Objectives

1. Prepare future aerospace engineers who will be successful in their careers, including industry, government service, and academia, in the State of Maryland and beyond.
2. Prepare students to solve relevant problems in 1) aerodynamics, 2) structures, 3) dynamics and controls, 4) propulsion, and 5) systems and design, with a focus in either the aeronautical or space areas.
3. Enable students to relate their fundamental physics, math and engineering studies to the many practical aspects of aerospace engineering research, development, and practice.
4. Prepare future aerospace engineers who are able to integrate their knowledge of engineering sub-disciplines to produce useful product designs.
5. Promote innovative educational activities to challenge students and improve the learning experience, including design presentations, hands-on laboratory experiences, novel use of Internet information technology, and independent research projects.

6. Seek continually to improve course offerings and curricula, while attracting the best students possible and improving the national stature of the program.

7. Prepare future aerospace engineers who understand the context in which their profession is practiced, and who are able to adapt to future developments in both technology and the employment market.

### The Major

Aerospace engineering is concerned with the processes, both analytical and creative, that are involved in the design, manufacture and operation of aerospace vehicles within and beyond planetary atmospheres. These vehicles range from helicopters and other vertical takeoff aircraft at the low-speed end of the flight spectrum, to spacecraft traveling at thousands of miles per hour during launch, orbit, transplanetary flight, or reentry, at the high-speed end. In between, there are general aviation and commercial transport aircraft flying at speeds well below and close to the speed of sound, and supersonic transports, fighters, and missiles which cruise supersonically. Although each speed regime and each vehicle poses its special problems, all aerospace vehicles can be addressed by a common set of technical specialties or disciplines.

The subdisciplines of Aerospace Engineering are: aerodynamics, flight dynamics, propulsion, structures, and "design". Aerodynamics addresses the flow of air and the associated forces, moments, pressures, and temperature changes. Flight-dynamics addresses the motion of the vehicles including the trajectories, the rotational dynamics, the sensors, and the control laws required for successful accomplishment of the missions. Propulsion addresses the engines which have been devised to convert chemical (and occasionally other forms) energy into useful work, to produce the thrust needed to propel aerospace vehicles. Structures addresses material properties, stresses, strains, deflection, and vibration along with manufacturing processes as required to produce the very light weight and rugged elements needed in aerospace vehicles. Aerospace "design" addresses the process of synthesizing vehicles and systems to meet defined missions and more general needs. This is a process that draws on information from the other subdisciplines while embodying its own unique elements.

The Aerospace Engineering program is designed to provide a firm foundation in the various subdisciplines. The Aerospace Engineering Department has facilities to support education and research across a range of special areas. There are subsonic wind tunnels with test sections ranging from a few inches up to 7.75 feet by 11.00 feet as well as a supersonic tunnel with a 6 inch by 6 inch test section. There are a number of structural test machines with capabilities up to 220,000 pounds for static loads and 50,000 pound for dynamic loads. There are experimental facilities to test helicopter rotors in hover, in forward flight, and in vacuum to isolate inertial loads from aerodynamic loads. There is an anechoic chamber for the investigation of noise generated by helicopters, and an autoclave and other facilities for manufacturing and inspecting composite structures. There is a neutral buoyancy facility for investigating assembly of space structures in a simulated zero gravity environment which is supported by robots and associated controllers.

There are many personal computers and workstations that provide local computing capability and extensive network access to campus mainframes, supercomputing centers, and all the resources of the Internet including the World Wide Web.

## 82 African American Studies

### Requirements for Major

|   | Semester     |           |
|---|--------------|-----------|
|   | Credit Hours |           |
| <b>FRESHMAN YEAR</b>                          | <b>I</b>     | <b>II</b> |
| ENES 100 Introduction to Engineering Design   | 3            |           |
| ENAE 100 The Aerospace Engineering Profession | 1            |           |
| CHEM 135 General Chemistry                    | 3            |           |
| MATH 140, 141 Calculus I, II                  | 4            | 4         |
| PHYS 161 General Physics I                    |              | 3         |
| ENES 102 Statics                              |              | 3         |
| ENAE 202 Aerospace Computing                  |              | 3         |
| CORE Program Requirements                     | 3            | 3         |
| <b>Total Credits</b>                          | <b>14</b>    | <b>16</b> |

|  | Semester     |           |
|--|--------------|-----------|
|  | Credit Hours |           |
| <b>SOPHOMORE YEAR</b>                            | <b>I</b>     | <b>II</b> |
| ENES 220 Mechanics of Materials                  | 3            |           |
| ENAE 283 Introduction to Aeronautical Systems    | 3            |           |
| MATH 241 Calculus III                            | 4            |           |
| ENAE 200 The Aerospace Engineering Profession II |              | 1         |
| ENME 232 Thermodynamics                          |              | 3         |
| MATH 246 Differential Equations                  |              | 3         |
| MATH 461 (or 240) Linear Algebra                 |              | 3         |
| PHYS 260/261 General Physics II                  | 4            |           |
| PHYS 270/271 General Physics III                 |              | 4         |
| CORE Program Requirements                        | 3            | 3         |
| <b>Total Credits</b>                             | <b>17</b>    | <b>16</b> |

|  | Semester     |           |
|--|--------------|-----------|
|  | Credit Hours |           |
| <b>JUNIOR YEAR</b>                                 | <b>I</b>     | <b>II</b> |
| ENAE 311 Aerodynamics I                            | 3            |           |
| ENAE 301 Dynamics of Aerospace Systems             | 3            |           |
| ENAE 362 Aerospace Instrumentation and Experiments | 3            |           |
| ENAE 324 Aerospace Structures                      |              | 4         |
| ENAE 432 Control of Aerospace Systems              |              | 3         |
| ENGL 393 Technical Writing                         |              | 3         |
| CORE Program Requirements                          | 3            | 3         |

|                            |  |   |
|----------------------------|--|---|
| <b>Aeronautical Track:</b> |  |   |
| ENAE 414 Aerodynamics II   |  | 3 |

|                                |           |           |
|--------------------------------|-----------|-----------|
| <b>Space System Track:</b>     |           |           |
| ENAE 404 Space Flight Dynamics |           | 3         |
| <b>Total Credits</b>           | <b>15</b> | <b>16</b> |

|                                     | Semester     |           |
|-------------------------------------|--------------|-----------|
|                                     | Credit Hours |           |
| <b>SENIOR YEAR</b>                  | <b>I</b>     | <b>II</b> |
| ENAE 464 Aerospace Engineering Lab  | 3            |           |
| ENAE 423 Vibration & Aeroelasticity |              | 3         |
| CORE Program Requirements           | 3            | 3         |
| Aerospace Elective                  |              | 3         |
| Technical Elective                  |              | 3         |

|  |   |   |
|--|---|---|
| <b>Aeronautical Track:</b>             |   |   |
| ENAE 403 Aircraft Flight Dynamics      | 3 |   |
| ENAE 455 Aircraft Propulsion & Power   | 3 |   |
| ENAE 481 Principles of Aircraft Design | 3 |   |
| ENAE 482 Aeronautical System Design    |   | 3 |

|   |           |           |
|---|-----------|-----------|
| <b>Space System Track:</b>                  |           |           |
| ENAE 441 Space Navigation & Guidance        | 3         |           |
| ENAE 457 Space Propulsion & Power           | 3         |           |
| ENAE 483 Principles of Space Systems Design | 3         |           |
| ENAE 484 Space Systems Design               |           | 3         |
| <b>Total Credits</b>                        | <b>15</b> | <b>15</b> |

**Minimum Degree Credits:** The fulfillment of all Department, School, and University requirements. A minimum of 124 credits are required for an Aerospace Engineering degree.

Students must select a track. All courses in either the Aeronautical or the Space Systems track must be completed. Students in either track who wish to gain a broader education across the aeronautical or space application areas can take courses required in the other track as electives.

### Aerospace Electives

The required Aerospace Elective is either ENAE 398 or a 400 level ENAE course in addition to the student's chosen track sequence. The Technical Elective must be a 300 or 400 level course in Engineering, Mathematics, or Physical Sciences that has been approved for this purpose by the Undergraduate Program Director. Only one of ENAE 398, a 488 project course or 499 may be used for these electives.

The Department offers a range of other electives. The following courses have recently been offered as electives for the undergraduate degree:

|  |   |
|--|---|
| ENAE 415 Helicopter Theory                             | 3 |
| ENAE 416 Viscous Flow & Aerodynamic Heating            | 3 |
| ENAE 424 Design & Manufacture of Computer Prototypes   |   |
| ENAE 425 Mechanics of Composite Structures             | 3 |
| ENAE 426 Computer-Aided Structural Analysis and Design | 3 |
| ENAE 471 Aircraft Flight Testing                       | 3 |
| ENAE 488B Intro to Computational Structural Dynamics   | 3 |
| ENAE 488M High Speed Aerodynamics                      | 3 |
| ENAE 488P Product Design                               | 3 |
| ENAE 488R Hybrid Rocket Design                         | 3 |
| ENAE 488W Design of Remotely Piloted Vehicles          | 3 |
| ENAE 499 Elective Research (Repeatable to 6 credits)   |   |

### Honors Program

Academically talented students will be invited to participate in the Aerospace Honors program. Honors sections of ENAE 283, ENAE 311, and ENAE 423 are offered as part of this program, in addition to an honors research project, ENAE 398.

### Admission

Admission requirements the same as those of other Engineering Departments. Please consult Chapter 1.

### Advising

Advising is mandatory. Each student is assigned to one of the full time faculty members who must be consulted and whose signature is required on the request for course registration each semester. The list of advisor assignments is available in the main office, 301-405-2376.

### Cooperative Education Program

Participation in the Cooperative Education Program is encouraged. See Chapter 1 for details.

### Financial Assistance

The Department offers numerous academic scholarships. All admitted and current students in the department are automatically considered for these awards and winners are chosen based on merit. No separate application is required.

### Scholarships and Awards

The Department offers the following awards: Academic Achievement Award for highest overall academic average at graduation; R.M. Rivello Scholarship Award for highest overall academic average through the junior year; Sigma Gamma Tau Outstanding Achievement Award for scholarship and service to the Student Chapter; American Helicopter Society Outstanding Achievement Award for service to the student chapter; American Institute of Aeronautics and Astronautics Outstanding Achievement Award for scholarship and service to the student chapter.

### Student Organizations

The Department is home to student chapters of the American Institute of Aeronautics and Astronautics, American Helicopter Society - International, and the Sigma Gamma Tau honor society. Aerospace Engineering students are also frequent participants in student activities of the Society for Advancement of Materials and Process Engineering.

## AFRICAN AMERICAN STUDIES (AASP)

### College of Behavioral and Social Sciences

2169 Lefrak Hall, 301-405-1158  
[www.bsos.umd.edu/aasp/](http://www.bsos.umd.edu/aasp/)

Chair and Associate Professor: S. Harley  
Professor: E. Wilson\* (GVPT)

Associate Professor: F. Wilson

Assistant Professors: M. Chateauvert, J. Nembhard

\*Joint appointment with unit indicated.

The African American Studies Department offers an interdisciplinary bachelor of arts degree in the study of the contemporary life, history, and culture of African Americans. The curriculum emphasizes the historical development of African American social, political, and economic institutions, while preparing students to apply analytic, social science skills in the creation of solutions to the pressing socio-economic problems confronting African American communities.

Two program options lead to the Bachelor of Arts degree. Both require a 15-credit core of course work that concentrates on African American history and culture.

**The Cultural and Social Analysis Concentration** provides a broad cultural and historical perspective. This concentration requires 18 additional credit hours in one or more specialty areas within African American Studies such as history, literature, government and politics, sociology or anthropology, as well as a departmental seminar.

**The Public Policy Concentration** provides in-depth training for problem solving in minority communities. It requires 21 additional credit hours in analytic methods, such as economics and statistics, nine credit hours of electives in a policy area (with departmental approval). Substantive areas of study include the family, criminal justice, employment, health care, discrimination, and urban development.

## Requirements for Major

**Foundation courses:** AASP 100, 101 (formerly 300), 200, 202, 297 (formerly 299R).

**Cultural and Social Analysis Concentration Requirements:** In addition to the foundation course requirements, 18 credits of AASP upper-division electives (300-400 numbers), AASP 400 or AASP 402 and AASP 397 or AASP 386 and AASP 396.

|   | Semester<br>Credit Hours |
|---|--------------------------|
| CORE Liberal Arts and Sciences                              | 43                       |
| AASP Foundation Courses: (total 15)                         |                          |
| AASP 100 Introduction to African American Studies           | 3                        |
| AASP 101 (Formerly 300) Public Policy and Black Community   | 3                        |
| AASP 200 African Civilization                               | 3                        |
| AASP 202 Black Culture in the United States                 | 3                        |
| AASP 297 Research Methods                                   | 3                        |
| <b>Upper-Division Electives in African American Studies</b> | <b>18</b>                |

### Seminars

|  |   |
|--|---|
| AASP400 or AASP 402 Classic Readings in African American Studies | 3 |
| AASP 397 Senior Thesis   | 3 |
| AASP 386 and AASP 396  | 6 |

**Public Policy Concentration Requirements:** In addition to the foundation courses, three credits of statistics; eight credits of elementary economics (ECON 200 and ECON 201); AASP 301, AASP 303, AASP 305; nine credits of upper-division AASP electives in the policy area (AASP numbers 499A-Z) or, with approval, elective courses outside of AASP; and AASP 397 or AASP 386 and AASP 396.

|   | Semester<br>Credit Hours |
|---|--------------------------|
| CORE Liberal Arts and Sciences                                | 43                       |
| AASP Foundation Courses: (total 15)                           |                          |
| AASP 100 Introduction to African American Studies             | 3                        |
| AASP 101 (Formerly 300) Public Policy and the Black Community | 3                        |
| AASP 200 African Civilization                                 | 3                        |
| AASP 202 Black Culture in the United States                   | 3                        |
| AASP 297 Research Methods                                     | 3                        |

### Analytic Component

|   |   |
|---|---|
| STAT 100 Elementary Statistics and Probability<br>or SOCY 201 Introductory Statistics for Sociology<br>or Equivalent Statistics Course (Sophomore Year) | 3 |
| AASP 301 (Formerly 428J)  | 3 |
| AASP 303 (Formerly 428P) Computer Applications in<br>African American Studies   | 3 |
| AASP 305 (Formerly 401) Theoretical, Methodological<br>and Policy Research Issues in African American Studies   | 3 |
| ECON 200 Principles of Microeconomics   | 4 |
| ECON 201 Principles of Macroeconomics   | 4 |
| One additional analytical skills course outside of AASP, with<br>AASP approval  | 3 |

|   |          |
|---|----------|
| <b>Policy Electives in African American Studies</b> | <b>9</b> |
|---|----------|

### Final Option:

|                           |   |
|---------------------------|---|
| 1) AASP 397 Senior Thesis | 3 |
| 2) AASP 386 and AASP 396  | 6 |

Students must earn a grade of C (2.0) or better in each course that is to be counted toward completion of degree requirements. All related or supporting courses in other departments must be approved by an AASP faculty advisor.

## Honors Program

Academically talented undergraduates may enroll in the University Honors Program with a specialization in African American Studies. The Honors Program includes seminars and lectures presented by distinguished University of Maryland, College Park, faculty and guests. A reduced ratio of students to faculty ensures more individualized study.

## BA/MPM Program

In this innovative joint program, candidates earn a bachelor's degree in African American Studies and a master's degree in public management after approximately five years. The BA/MPM is designed to integrate the study of the history, culture, and life of African Americans with technical skills, training, and techniques of contemporary policy analysis. The program also features a summer component that includes a lecture series, research opportunities, and special seminars.

### Admission into the BA/MPM program requires two steps:

#### Undergraduate

- (1) Students must major in the public policy concentration within the African American Studies program and maintain an overall GPA of 3.0 or greater.

#### Graduate

- (2) Students apply to the joint program after completing 81 credit hours of undergraduate work. Applicants must meet both University of Maryland, College Park graduate and School of Public Affairs graduate admission requirements.

### Eligibility

Freshmen or University of Maryland, College Park, students in good academic standing with fewer than 60 credits may apply to the BA/MPM program. **Contact:** The African American Studies Department at 301-405-1158 for application details.

## Options for Study with AASP

For students who major in other departments, the African American Studies Program offers three options for study:

1. Students may obtain a certificate in African American Studies by completing 21 credit hours of course work.

For more information on the African American Studies Certificate, see the section on campus-wide programs later in this chapter.

2. Students may designate African American Studies as a double major, completing the major requirements for both AASP and another program.
3. AASP can be a supporting area of student for majors such as Computer Science, Business, or Engineering.
4. Students may obtain a minor in Black Women's Studies by completing 15 credit hours of coursework.

## Scholarships and Financial Aid:

John B. and Ida Slaughter Scholarship

## Advising

Undergraduates in good academic standing may enroll in the African American Studies Department or obtain more information about available options and services by contacting the Undergraduate Academic Advisor, African American Studies Department, 2169 Lefrak Hall, University of Maryland, College Park, MD 20742, 301-405-1158.

Course Code: AASP



## 84 Agricultural Sciences, General

### AGRICULTURAL SCIENCES, GENERAL (GNAS)

#### College of Agriculture and Natural Resources

0115 H.J. Patterson, 301-405-1331

Program Coordinator: D.S. Glenn (sglenn@umd.edu)

Department Offices - 2102 Plant Sciences Building, 301-405-4355

[www.nrsl.umd.edu/](http://www.nrsl.umd.edu/)

Professor and Chair: Coale

Professors: Dernoeden, Fretz, Hill, James\*, Kenworthy, McIntosh\*, Miller,

Ng, Quebedeaux, Rabenhorst, Solomos, Walsh, Weil, Weismiller

Associate Professors: Bouwkamp, Carroll, Coleman, Costa, Deitzer, Everts, Glenn, Grybauskas, Lea-Cox, Ritter, Slaughter, J.B. Sullivan, J.H. Sullivan, Swartz, Turner, Vough

Assistant Professors: Chang, Kratochvil, Momen, Myers, Needelman, Neel

Lecturers: Bosmans, Nola, Steinhilber

Professor of the Practice: Cohan

Affiliate Professors: Fiola, Kearney, Tjaden

Adjunct Professors: Cregan, Daughtry, Meisinger, Mucciardi, Rosenberg, Saunders, Tamboli

Adjunct Associate Professors: Christiansen, Izaurralde, Tucker

Adjunct Assistant Professors: Kane, Leonard, Pooler

Professors Emeriti: Aycock, Bandel, Beste, Clark, Decker, Fanning, Gouin, Hoyert, Kuhn, Link, McClurg, Mulchi, Oliver, Shanks, Strickling, Thompson, Wiley

\*Distinguished Scholar-Teacher

#### The Major

The Department of Natural Resource Sciences and Landscape Architecture offers three undergraduate majors. Two lead to the Bachelor of Science (B.S.) degree; one in Natural Resource Sciences and the other in General Agricultural Sciences. The third major leads to a Bachelor of Landscape Architecture (B.L.A.) degree.

Agriculture is a complex subject, encompassing a range of scientific disciplines and professional fields. Majoring in General Agricultural Sciences does not require an agricultural background, as the curriculum gives students a broad overview of both plant and animal agriculture. This major is designed for students who are interested in a broad education in the field of agriculture. It is ideal for students who would like to survey agriculture before specializing, or for those who prefer to design their own program. To supplement classroom work, students in this major are encouraged to obtain summer positions that will provide technical laboratory or field experience in their chosen area. This program is administered by the Department of Natural Resource Sciences and Landscape Architecture.

*This program is currently under revision. Incoming students should contact their advisor for any recent changes.*

#### Curriculum in General Agricultural Sciences (GNAS)

| Requirements for Degree   | Semester<br>Credit Hours |
|---|--------------------------|
| ANSC 101 Principles of Animal Science   | 3                        |
| ANSC <b>or</b> NRSC**   | 3                        |
| ANSC 314 Comparative Animal Nutrition   | 3                        |
| AREC 250 Elements of Agricultural and Resource Economics  | 3                        |
| AREC **   | 3                        |
| BSCI 105 Principles of Biology I  | 4                        |
| BSCI 106 Principles of Biology II   | 4                        |
| BSCI **Insect Pest Type Course  | 3                        |
| CHEM 131/132 General Chemistry I  | 4                        |
| CHEM 104 Fundamentals of Organic and Biochemistry, <b>or</b><br>CHEM 113 General Chemistry II               |                          |
| and CHEM 231/232 Organic Chemistry I  | 4-8                      |
| ENBE 100 Basic Biological Resources Engineering Technology  | 3                        |
| ENBE 200 Fundamentals of Agricultural Mechanics   | 3                        |
| MATH 110 <b>or</b> higher (MATH 115 recommended)  | 3                        |
| NRSC 200 Fundamentals of Soil Science   | 4                        |
| PLSC 420 Principles of Plant Pathology <b>or</b><br>ANSC 412 Introduction to Diseases of Animals            | 4                        |
| PLSC 101 Introductory Crop Science  | 4                        |
| PLSC **   | 3                        |
| SOCY 305 Scarcity and Modern Society  | 3                        |
| Community Development Related, Non-Agricultural Life Science,<br>Biometrics, Computer, <b>or</b> Accounting | 6                        |
| CORE and General Agricultural Program Requirements*   | 91-100                   |
| Electives (18 credit hours at 300-level <b>or</b> above)  | 20-29                    |

\*\*Student may select any course(s) having required hours in the area indicated.

### AGRICULTURAL AND RESOURCE ECONOMICS (AREC)

#### College of Agriculture and Natural Resources

2200 Symons Hall, 301-405-1293

E-mail: [arecuinfo@umail.umd.edu](mailto:arecuinfo@umail.umd.edu)

[www.arec.umd.edu](http://www.arec.umd.edu)

Professor and Chair: McConnell

Professors: Bockstael, Chambers, Gardner††, Hueth, Just†† Lichtenberg, Lopez, Musser, Nerlove, Olson

Associate Professors: Alberini, Haigh, Hanson, Horowitz, Leathers, Lipton, Lynch, Parker

Assistant Professors: Kirwan, Lange, Leonard, McAusland, Melkonyan

Emeriti: Bender, Brown, Cain, Foster, Hardie, Moore, Stevens, Strand,

Tuthill, Wysong

Adjunct: Chavas

††Distinguished University Professor

Agricultural and Resource Economics majors complete a set of prerequisite courses, a core of classes offered by the Agricultural and Resource Economics Department, and one or more fields comprised of selected courses from outside the department. The core includes courses in economic reasoning, agribusiness management, environmental and resource policy, agricultural policy, economic development, and analytical methods. The program permits students flexibility in choosing fields to fit their career interests. Majors must complete one and are strongly encouraged to complete two fields. The curriculum balances breadth and depth, and lets students develop academic skills in two or more areas. The program provides a good foundation for careers in economics, resource or environmental policy, agribusiness, and international agriculture. Students are also able to minor in Agricultural and Resource Economics.

#### Advising

Because the program is flexible, advising is mandatory. Appointments may be made in Room 2200 Symons Hall, 301-405-1291.

#### Awards

Scholarships honoring Arthur and Pauline Seidenspinner and Ray Murray are available. Contact a faculty advisor for more information, 301-405-1291.

#### Double Majors

The department features a double major with Spanish for students interested in careers in multinational agribusiness firms or international agencies. It features a double major with Government and Politics for students interested in law school. Both can be completed within 120 credits. Other double majors are possible in consultation with an advisor.

#### Requirements for Major

|  | Semester<br>Credit Hours |
|--|--------------------------|
| <b>Prerequisite Courses</b>  |                          |
| ECON 200 Principles of Microeconomics                                    | 4                        |
| ECON 201 Principles of Macroeconomics                                    | 4                        |
| ECON 306 Intermediate Microeconomic Theory                               | 3                        |
| ECON 321 ( <b>or</b> BMGT 230) Economic ( <b>or</b> Business) Statistics | 3                        |
| MATH 220 ( <b>or</b> MATH 140) Calculus                                  | 3                        |
| STAT 100 ( <b>or</b> MATH 111) Introduction to Probability               | 3                        |
| <b>Major Core Courses</b>  |                          |
| Seven of these courses must be successfully completed.                   |                          |
| AREC 404 Applied Price Analysis  | 3                        |
| AREC 405 Economics of Production   | 3                        |
| AREC 425 Economics of Food Sector  | 3                        |
| AREC 427 Economics of Commodity Marketing Systems                        | 3                        |
| AREC 433 Food and Agricultural Policy                                    | 3                        |
| AREC 435 Commodity Futures and Options                                   | 3                        |
| AREC 445 Agricultural Development in the Third World                     | 3                        |
| AREC 453 Economics of Natural Resource Use                               | 3                        |
| AREC 455 Economics of Land Use   | 3                        |
| AREC 484 Introduction to Econometrics in Agriculture                     | 3                        |

AREC 306, AREC 382, or any other 3 credit 400 level AREC course may be substituted with permission of advisor.

## Fields

All majors must complete one of the following fields. Two are strongly encouraged.

### • Business Management

|                                      |   |
|--------------------------------------|---|
| BMGT 220 Principles of Accounting I  | 3 |
| BMGT 221 Principles of Accounting II | 3 |
| BMGT 340 Business Finance            | 3 |
| BMGT 350 Marketing Principles        | 3 |
| BMGT 364 Management and Organization | 3 |
| BMGT 380 Business Law I              | 3 |

Other 300 level BMGT courses may be substituted, with permission of advisor. The AREC department cannot authorize students to take BMGT courses that are restricted to business majors.

### • Agricultural Science

Six (or more) courses (for a total of at least 18 credits) in agricultural science, including:

|  |   |
|--|---|
| ENBE 110 Introduction to Biological Resources Engineering                  | 1 |
| ENBE 200 Fundamentals of Agricultural Mechanics                            | 3 |
| PLSC 100 <b>or</b> 101 Introduction to Horticulture <b>or</b> Crop Science | 4 |
| NRSC 105 Soil and Environmental Quality                                    | 3 |
| ANSC 101 Principles of Animal Science                                      | 3 |

Other courses in agricultural science, chosen in consultation with an advisor. Substitutions to the above listed courses may be made with the permission of advisor.

### • Food Production

Six courses (for a total of at least 18 credits) from the following list:

|  |   |
|--|---|
| PHYS 117 ( <b>or</b> PHYS 121) Introduction to Physics | 4 |
| BSCI 105 Principles of Biology                         | 4 |
| BSCI 223 Introduction to Microbiology                  | 4 |
| NFSC 100 Elements of Nutrition                         | 3 |
| NFSC 112 Food Science and Technology                   | 3 |
| NFSC 430 Food Microbiology                             | 2 |
| NFSC 431 Food Quality Control                          | 4 |

Other courses related to food science can be substituted with permission of advisor.

### • Environmental and Resource Policy

Six courses (for a total of at least 18 credits) from the following list:

|   |   |
|---|---|
| ECON 381 Environmental Economics                  | 3 |
| ANTH 450 Resource Management and Cultural Process | 3 |
| HIST 405 Environmental History                    | 3 |
| GEOG 372 Remote Sensing                           | 3 |
| GEOG 373 Geographic Information Systems           | 3 |
| GVPT 273 Introduction to Environmental Politics   | 3 |
| GVPT 306 Global Ecopolitics                       | 3 |

Other courses related to environmental policies or sciences can be substituted with permission of advisor.

### • International Agriculture

Six courses (for a total of at least 18 credits) from the following list:

|   |   |
|---|---|
| ECON 305 Intermediate Macroeconomics                  | 3 |
| ECON 315 Economic Development of Underdeveloped Areas | 3 |
| ECON 340 International Economics                      | 3 |
| GEOG 422 Population Geography                         | 3 |
| GVPT 200 International Political Relations            | 3 |
| GVPT 350 International Relations in the Third World   | 3 |
| NRSC 440 Crops, Soils and Civilization                | 3 |
| PLSC 303 International Crop Production                | 3 |

Other courses related to international economics, business, politics, or agriculture can be substituted with permission of advisor.

### • Political Process

Any six courses (for a total of at least 18 credits) in government and politics (GVPT), chosen with permission of the advisor.

### • Advanced Degree Preparation

Six (or more) courses (for a total of at least 18 credits) from the following list:

|   |   |
|---|---|
| ECON 407 Advanced Macroeconomics              | 3 |
| ECON 414 Game Theory                          | 3 |
| ECON 415 Strategic Behavior and Incentives    | 3 |
| ECON 422 Quantitative Methods in Economics I  | 3 |
| ECON 423 Quantitative Methods in Economics II | 3 |
| ECON 425 Mathematical Economics               | 3 |
| MATH 141 Calculus II                          | 4 |
| MATH 240 Introduction to Linear Algebra       | 4 |
| MATH 241 Calculus III                         | 4 |

Other courses in mathematics, statistics, or econometrics may be substituted with permission of advisor.

### • Student Designed Field

This field requires a written proposal listing at least six courses totaling at least 18 credits. The proposal must be submitted to the Undergraduate Committee of the AREC department. Committee approval must be obtained 30 or more credit hours before graduation. A student designed field may be used to study a foreign language as part of the AREC curriculum.

**Requirements for Minor in AREC.** Three minors exist in AREC.

#### • Agribusiness Economics

|  |   |
|--|---|
| AREC 250 Elements of Agricultural and Resource Economics | 3 |
| AREC 404 Applied Price Analysis                          | 3 |
| AREC 405 Economics of Production                         | 3 |
| AREC 425 Economics of Commodity Marketing Systems        | 3 |
| AREC 435 Commodity Futures and Options                   | 3 |

Another AREC course can be substituted for one of the course listed with permission of the Undergraduate Advisor.

#### • Resource and Agricultural Policy in Economic Development

|   |   |
|---|---|
| AREC 250 Elements of Agricultural and Resource Economics                  | 3 |
| AREC 365 World Hunger, Population and Food Supplies                       | 3 |
| AREC 433 Food and Agricultural Policy                                     | 3 |
| AREC 445 Agricultural Development, Population Growth, and the Environment | 3 |
| AREC 453 Natural Resources and Public Policy                              | 3 |

Another AREC course can be substituted for one of the course listed with permission of the Undergraduate Advisor.

#### • Environmental Economics and Policy

|   |   |
|---|---|
| AREC 240 Introduction to Economics and the Environment                    | 3 |
| AREC 332 Introduction to Natural Resource Policy                          | 3 |
| AREC 382 Computer-based Analysis in Agricultural and Resource Economics   | 3 |
| AREC 445 Agricultural Development, Population Growth, and the Environment | 3 |
| AREC 455 Economics of Land Use  | 3 |

Another AREC course can be substituted for one of the course listed with permission of Undergraduate Advisor.

Course Code: AREC

## AGRONOMY (AGRO)

The Agronomy and Horticulture programs have been reorganized into a single major, Natural Resource Sciences (NRSC). See **Natural Resource Sciences** elsewhere in this chapter. (**Note:** Courses formerly offered as AGRO and HORT are now offered as NRSC and PLSC.)

## AMERICAN STUDIES (AMST)

### College of Arts and Humanities

1102 Holzapfel Hall, 301-405-1354

[amst.umd.edu/index.html](http://amst.umd.edu/index.html)

Professor and Chair: Caughey

Professors: Kelly, Michel, Struna

Associate Professors: Lounsbury, Mintz, Paoletti, Parks, Sies

## 86 Animal Sciences

### The Major

American Studies offers an interdisciplinary approach to the study of American culture and society, past and present, with special attention to the ways in which Americans, in different historical or social contexts, make sense of their experience. Emphasizing analysis and synthesis of diverse cultural products, the major provides valuable preparation for graduate training in the professions as well as in business, government, and museum work. Undergraduate majors, with the help of faculty advisors, design a program that includes courses offered by the American Studies faculty, and sequences of courses in the disciplines usually associated with American Studies (i.e., history, literature, sociology, anthropology, art history, and others), or pertinent courses grouped thematically (e.g., Afro-American studies, women's studies, ethnic studies).

### Requirements for Major

**Changes in requirements are under review. Students should consult the department for updated information.** Requirements for the American Studies major include a minimum of 45 upper-level credits completed and the foreign-language requirements of the College of Arts and Humanities. The major requires 45 hours, at least 24 of which must be at the 300-400 level. Of those 45 hours, 21 must be in AMST courses, with the remaining 24 in two 12 credit hour core areas outside the regular AMST departmental offerings. No grade lower than a C may be applied toward the major.

### Distribution of the 45 hours

#### AMST Courses (21 hours required)

1. AMST 201/Introduction to American Studies (3): required of majors.
2. Three (3) or six (6) hours of additional lower-level course work.
3. AMST 330/Critics of American Culture (3): required of majors.
4. Six (6) or nine (9) hours of upper-level course work. No more than 6 hours of a repeatable number may be applied to the major.  
\*\*\*Students should take AMST 201 before taking any other AMST courses and will complete AMST 330 before taking 400-level courses.
5. AMST 450/Seminar in American Studies (3): required of majors.

### Core areas outside American Studies (24 hours required)

Majors choose two outside core areas of 12 hours each. At least one of the cores must be in a discipline traditionally associated with American Studies. The other core may be thematic. Upon entering the major, students develop a plan of study for the core areas in consultation with an advisor; this plan will be kept in the student's file. All cores must be approved in writing by an advisor.

### Traditional Disciplinary Cores

History, Literature, Sociology/Anthropology, Art/Architectural History.

### Interdisciplinary or Thematic Cores

Afro-American Studies, Women's Studies, Urban Studies, Popular Culture, Personality and Culture, Comparative Culture, Material Culture, Ethnic Studies, Business and Economic History, Folklore, Government and Politics, Education, Philosophy, Journalism.

### Advising

Departmental advising is mandatory every semester for all majors.

Course Code: AMST

## ANIMAL SCIENCES (ANSC)

### College of Agriculture and Natural Resources

1415A Animal Sciences Center, 301-405-1373

E-mail: markv@umd.edu

[www.ansc.umd.edu](http://www.ansc.umd.edu)

### Department of Animal and Avian Sciences

Professor and Chair: Erdman

Professors: Harrell, Mather, Ottinger, Peters, Porter, Varner, Vijay

Associate Professors: Angel, Doerr, Estevez, Hartsock, Keefer, Kohn, Stricklin, Woods, Zimmermann

Assistant Professors: Bequette, Burk, Hamza, Humphrey, Seiwerdt, Song

Emeriti: Douglass, Heath, Soares, Vandersall, Westhoff, Williams, Young  
Adjunct Professors: Bakst, Howard, McMurtry, Paape, Rattner, Richards, Wall

### The Major

Animal Sciences prepares students for veterinary school, graduate school and careers in research, sales and marketing, biotechnology, aquaculture, and animal production. The curricula apply the principles of biology and technology to the care, management, and study of dairy and beef cattle, horses, fish, sheep, swine, and poultry. Students complete the Animal Sciences core courses and choose a specialization area: Animal Biotechnology, Animal Care and Management, Equine Studies, Laboratory Animal Management, and Sciences/ Professional Option to prepare for admission to graduate, veterinary, pharmacy, nursing or medical school. The Animal Sciences Center includes classrooms, lecture hall, social area, teaching labs, and animal rooms adjacent to a teaching farm where horses, sheep, and cattle are maintained throughout the year.

**ANIMAL SCIENCES CORE:** All undergraduates majoring in Animal Sciences must complete the following course requirements:

ANSC 101 Principles of Animal Sciences  
ANSC 211 Animal Anatomy  
ANSC 212 Animal Physiology  
ANSC 214 Animal Physiology Laboratory  
ANSC 314 Comparative Animal Nutrition  
ANSC 327 Molecular and Quantitative Animal Genetics  
BSCI 105 Principles of Biology I  
BSCI 223 General Microbiology  
CHEM 131/132 General Chemistry I/Laboratory  
MATH 220 **or** 140 Calculus **or** above  
AREC 250 Elements of Agricultural and Resource Economics **or**  
ECON 200 Principles of Micro-Economics

**ADDITIONAL COURSE WORK:** All students must complete 30-40 credits in one of the following six options.

#### 1. ANIMAL CARE AND MANAGEMENT (0104A)

##### Required Courses

ANSC 315 Applied Animal Nutrition  
ANSC 446 Physiology of Mammalian Reproduction  
ANSC 447 Physiology of Mammalian Reproduction Laboratory  
AREC 306 Farm Management  
BSCI 106 Principles of Biology II  
CHEM 104 Fundamentals of Organic and Biochemistry

##### Plus take 6 credits from the following courses:

ANSC 420 Critical Thinking in Animal Sciences  
ANSC 435 Experimental Embryology  
ANSC 437 Animal Biotechnology  
ANSC 443 Physiology and Biochemistry of Lactation  
ANSC 444 Domestic Animal Endocrinology  
ANSC 452 Avian Physiology  
ANSC 453 Animal Welfare  
ANSC 455 Applied Animal Behavior  
ANSC 497 Animal Biotechnology Recombinant DNA Laboratory

##### Plus take 9 credits from the following courses:

ANSC 340 Health Management of Animal Populations  
ANSC 220 Livestock Management  
ANSC 232 Horse Management  
ANSC 240 Dairy Cattle Management  
ANSC 255 Introduction to Aquaculture  
ANSC 262 Commercial Poultry Management  
ANSC 305 Companion Animal Care  
ANSC 413 Laboratory Animal Management

#### 2. EQUINE STUDIES (0104C)

##### Required Courses

ANSC 220 Livestock Management  
ANSC 232 Horse Management  
ANSC 330 Equine Science  
ANSC 315 Applied Animal Nutrition  
ANSC 446 Physiology of Mammalian Reproduction  
ANSC 447 Physiology of Mammalian Reproduction Laboratory  
AREC 306 Farm Management  
BSCI 106 Principles of Biology II  
CHEM 104 Fundamentals of Organic and Biochemistry

**Plus take 9 credits from the following courses:**

ANSC 340 Health Management of Animal Populations  
ANSC 420 Critical Thinking in Animal Sciences  
ANSC 435 Experimental Embryology  
ANSC 437 Animal Biotechnology  
ANSC 443 Physiology and Biochemistry of Lactation  
ANSC 444 Domestic Animal Endocrinology  
ANSC 452 Avian Physiology  
ANSC 453 Animal Welfare  
ANSC 455 Applied Animal Behavior  
ANSC 497 Animal Biotechnology Recombinant DNA Laboratory

**3. LABORATORY ANIMAL MANAGEMENT (0104D)**

**Required Courses**

ANSC 340 Health Management of Animal Populations  
ANSC 413 Lab Animal Management  
ANSC 437 Animal Biotechnology  
ANSC 446 Physiology of Mammalian Reproduction  
ANSC 447 Physiology of Mammalian Reproduction Laboratory  
ANSC 453 Animal Welfare  
ANSC 455 Applied Animal Behavior  
BSCI 106 Principles of Biology II  
CHEM 104 Fundamentals of Organic and Biochemistry

**Plus take 6 credits from the following courses:**

ANSC 420 Critical Thinking in Animal Sciences  
ANSC 435 Experimental Embryology  
ANSC 443 Physiology and Biochemistry of Lactation  
ANSC 444 Domestic Animal Endocrinology  
ANSC 452 Avian Physiology  
ANSC 497 Animal Biotechnology Recombinant DNA Laboratory

**Plus take 3 credits from the following courses:**

ANSC 220 Livestock Management  
ANSC 255 Introduction to Aquaculture  
ANSC 262 Commercial Poultry Management

**4. & 5. SCIENCES & COMBINED AG AND VET SCI (0104E and 1299D)**

**Required Courses**

ANSC 315 Applied Animal Nutrition  
BSCI 106 Principles of Biology II  
BCHM 463 Biochemistry of Physiology **or**  
BSCI 230 Cell Biology and Physiology  
CHEM 231/232 Organic Chemistry I/Laboratory  
CHEM 241/242 Organic Chemistry II/Laboratory  
CHEM 271 General Chemistry and Energetics  
PHYS 121 Fundamentals of Physics I  
PHYS 122 Fundamentals of Physics II

**Plus take 9 credits from the following courses:**

ANSC 340 Health Management of Animal Populations  
ANSC 420 Critical Thinking in Animal Sciences  
ANSC 435 Experimental Embryology  
ANSC 437 Animal Biotechnology  
ANSC 443 Physiology and Biochemistry of Lactation  
ANSC 444 Domestic Animal Endocrinology  
ANSC 446 Physiology of Mammalian Reproduction  
ANSC 447 Physiology of Mammalian Reproduction Laboratory  
ANSC 452 Avian Physiology  
ANSC 453 Animal Welfare  
ANSC 455 Applied Animal Behavior  
ANSC 497 Animal Biotechnology Recombinant DNA Laboratory

**Plus take 3 credits from the following courses:**

ANSC 220 Livestock Management  
ANSC 232 Horse Management  
ANSC 240 Dairy Cattle Management  
ANSC 255 Introduction to Aquaculture  
ANSC 262 Commercial Poultry Management  
ANSC 413 Laboratory Animal Management

For additional information concerning veterinary school applications, please contact the K. Feldman, VMRCVM, 8705 Greenmead Dr., University of Maryland, College Park, MD 20742-3711, 301-314-6820, [kfeldman@umd.edu](mailto:kfeldman@umd.edu).

**6. ANIMAL BIOTECHNOLOGY (0104F)**

**Required Courses**

ANSC 437 Animal Biotechnology  
ANSC 497 Animal Biotechnology Recombinant DNA Laboratory  
BCHM 463 Biochemistry of Physiology  
BSCI 230 Cell Biology and Physiology  
CHEM 231/232 Organic Chemistry I/Laboratory  
CHEM 241/242 Organic Chemistry II/Laboratory  
CHEM 271 General Chemistry and Energetics

**Plus take 3 credits from the following courses:**

ANSC 220 Livestock Management  
ANSC 255 Introduction to Aquaculture  
ANSC 262 Commercial Poultry Management  
ANSC 413 Laboratory Animal Management

**Plus take 9 credits from the following courses:**

ANSC 340 Health Management of Animal Populations  
ANSC 420 Critical Thinking in Animal Sciences  
ANSC 443 Physiology and Biochemistry of Lactation  
ANSC 446 Physiology of Mammalian Reproduction  
ANSC 447 Physiology of Mammalian Reproduction Laboratory  
ANSC 452 Avian Physiology  
ANSC 453 Animal Welfare  
ANSC 455 Applied Animal Behavior

**Plus take 3 credits from the following courses:**

ANSC 435 Experimental Embryology  
BSCI 380 Comparative Bioinformatics  
BSCI 413 Recombinant DNA

**Advising**

Advising is mandatory. Each student will be assigned to a faculty advisor to assist in planning his or her academic program. For information or appointment: 1415A Animal Sciences Center, 301-405-1373.

**Scholarships and Awards**

American Society of Animal Sciences Scholastic Recognition and Department of Animal Sciences Scholastic Achievement Awards are presented each year at the College of Agriculture and Natural Resources Student Awards Convocation. The ANSC program administers several scholarships, including: C.W. England, Dairy Technology Society, the Kinghome Fund Fellowship, the C.S. Shaffner Award, the Lillian Hildebrandt Rummel Scholarship, and the Owen P. Thomas Development Scholarship. For eligibility criteria, visit the ANSC Office, 1415A Animal Sciences Center.

**Student Organizations**

ANSC majors are encouraged to participate in one or more of the following social/professional student organizations. The Animal Husbandry Club, Sigma Alpha sorority, the University of Maryland Equestrian Club, the Veterinary Science Club, and the Poultry Science Club. For more information, visit the ANSC Office of Undergraduate Studies, 1415A Animal Sciences Center.

Course Code: ANSC

**ANTHROPOLOGY (ANTH)**

**College of Behavioral and Social Sciences**

1111 Woods Hall, 301-405-1423

[www.bsos.umd.edu/anth](http://www.bsos.umd.edu/anth)

Professor and Chair: Chambers  
Professors: Agar (Emeritus), Chernela (also LASC), Gonzalez (Emerita), Jackson, Leone, Shackel, Whitehead, Williams  
Associate Professors: Freidenberg, Paolisso  
Assistant Professors: Brighton, Stuart  
Lecturers: Finch, Hall, London, Wilczak  
Faculty Research Associate: Mortensen  
Affiliate Faculty: Bolles (WMST), Caughey (AMST), Harrison (CMLT, LASC), Kim (WMST), Linebaugh (HISP), Nieves (HISP), Robertson (MUSC)  
Adjunct Faculty: Abbott-Jamieson (Adjunct Professor, National Oceanic and Atmospheric Administration, Crain (Adjunct Professor, LTG Associates), Fiske, Froment (Adjunct Professor), Kaljee (Adjunct Professor), Little (Adjunct Professor, National Park Service), McManamon (Adjunct Professor, National Park Service), Miere (Adjunct Professor, Sr. Fellow, Smithsonian Institute), Potter (Adjunct Professor, National Park Service), Puentes-Markides (Adjunct Professor, PAHO/WHO), Tashima (Adjunct Professor, LTG Associates)  
Advisor Consultant: Robinson

## 88 Applied Mathematics and Scientific Computation Program

### The Major

Anthropology, the study of culture, seeks to understand humans as a whole—as social beings who are capable of symbolic communication through which they produce a rich cultural record. Anthropologists try to explain differences among cultures—differences in physical characteristics as well as in customary behavior. Anthropologists study how culture has changed through time as the human genus has spread over the earth. Anthropology is the science of the biological evolution of human species, and the disciplined scholarship of the cultural development of human beings' knowledge and customary behavior.

Anthropology at the University of Maryland offers rigorous training for many career options. A strong background in anthropology is a definite asset in preparing for a variety of academic and professional fields, ranging from the law and business, to comparative literature, philosophy and the fine arts. Whether one goes on to a Master's or a Ph.D., the anthropology B.A. prepares one for a wide range of non-academic employment, such as city and public health planning, development consulting, program evaluation, and public archaeology.

### Academic Programs and Departmental Facilities

The Anthropology department offers beginning and advanced course work in the three principal subdivisions of the discipline: cultural anthropology, archaeology, and biological anthropology. Within each area, the department offers some degree of specialization and provides a variety of opportunities for research and independent study. Laboratory courses are offered in biological anthropology and archaeology. Field schools are offered in archaeology. The interrelationship of all branches of anthropology is emphasized.

The undergraduate curriculum is tied to the department's Master in Applied Anthropology (M.A.A.) program; accordingly, preparation for non-academic employment upon graduation is a primary educational goal of the department's undergraduate course work and internship and research components.

The Anthropology department has a total of four laboratories, located in Woods Hall, which are divided into teaching labs and research labs. The department's two archaeology labs, containing materials collected from field schools of the past several years, serve both teaching and research purposes. The other two laboratories are a teaching laboratory in biological anthropology and the Laboratory for Applied Ethnography and Community Action Research.

Cultural Systems Analysis Group (CuSAG), a research and program development arm of the department, is located in Woods Hall.

Center for Heritage Research Studies, located in the Department of Anthropology, focuses on research devoted to understanding the cultural characteristics of heritage and its uses.

### Requirements for Major

Majors are required to take five courses in the core course sequence (three introductory courses and two advanced method and theory courses), for a total of 16-17 credit hours. They must also take 15 credit hours in anthropology electives and 18 supporting credit hours, courses that are primarily outside the major. Anthropology majors must also acquire a second language or complete a quantitative methods course.

#### Required Courses:

- ANTH 220 Introduction to Biological Anthropology
- ANTH 240 Introduction to Archaeology
- ANTH 260 Introduction to Sociocultural Anthropology and Linguistics

**At least two of the following (one must be in major's area of primary focus-i.e., cultural anthropology, archaeology, biological anthropology):**

- ANTH 320 Method and Theory in Biological Anthropology
- ANTH 340 Method and Theory in Archaeology
- ANTH 360 Method and Theory in Sociocultural Anthropology

#### Quantitative Methods or Foreign Language Requirement:

- A) a quantitative methods course: 3 credit hours required—for a list of classes recommended for this requirement, see the Director for Office of Undergraduate Studies; or
- B) Three or more terms of a foreign language, depending upon proficiency. Proficiency may be demonstrated in one of the following ways:
  - 1) successful completion of high-school level 4 in one language, or
  - 2) successful completion of a 12-credit sequence or of the intermediate level in college language courses, or

- 3) successful completion of a placement examination at the above levels in one of the campus language departments offering such examinations

**Electives:** 15 credit hours in anthropology electives, 9 at the 300-level or above.

**Supporting:** 18+ credit hours outside of the department with your academic advisor's approval (8 hours may be anthropology course work).

In addition to the above requirements, anthropology majors must meet the requirements of the College of Behavioral and Social Sciences, as well as the requirements of the university's general education program.

### Advising

Undergraduate advising is coordinated by the director of Office of Undergraduate Studies who serves as the administrative advisor for all undergraduate majors and minors. All majors are required to meet with the director of Office of Undergraduate Studies at least once per term, at the time of early registration. In addition, the Anthropology department encourages students to select an academic advisor who will work closely with the student to tailor the program to fit the student's particular interests and needs. All Anthropology faculty members serve as academic advisors (and should be contacted individually). Each major is expected to select an academic advisor from the faculty in the field of his/her concentration (Biological Anthropology, Socio-Cultural Anthropology, or Archaeology), and to consult with him/her on a regular basis. The student's choice of a quantitative methods course must be approved by the student's advisor. For additional information, students should contact the Director of Office of Undergraduate Studies, Dr. Paul Shackel, 1119 Woods Hall, 301-405-1422; E-mail: pshackel@anth.umd.edu. or Advisor Consultant, Keisha Robinson, 1117 Woods Hall, 301-405-1436; E-mail: krobinson@anth.umd.edu

### Honors

The Anthropology department also offers an Honors Program that provides the student an opportunity to pursue in-depth study of his or her interests. Acceptance is contingent upon a 3.5 GPA in anthropology courses and a 3.0 overall average. Members of this program are encouraged to take as many departmental honors courses (either as HONR or as "H" sections of ANTH courses) as possible. The Honors Citation is awarded upon completion and review of a thesis (usually based upon at least one term of research under the direction of an Anthropology faculty member) to be done within the field of anthropology. Details and applications are available in the Anthropology Office, or from your departmental advisor.

### Student Organizations

Anthropology Student Association (ASA). An anthropology student association meets regularly to plan student events and to help coordinate various student and faculty activities. Meeting times are posted outside 0100 Woods Hall.

The department and the ASA jointly sponsor a public lecture series.

Course Code: ANTH

## APPLIED MATHEMATICS AND SCIENTIFIC COMPUTATION PROGRAM

### College of Computer, Mathematical and Physical Sciences

3103 Mathematics Building, 301-405-0924

[www.amsc.umd.edu](http://www.amsc.umd.edu)

Director: Levermore

Faculty: More than 100 members from 19 units.

The Applied Mathematics and Scientific Computation Program offers a graduate program in which students combine studies in mathematics and application areas. The Program also offers an undergraduate Certificate in Computational Science. AMSC courses carry credit in mathematics, with the exception of AMSC 462. An undergraduate program emphasizing applied mathematics is available to majors in mathematics. Appropriate courses carry the MATH and STAT prefixes, as well as the AMSC prefix.

## Certificate in Computational Science

The Certificate in Computational Science introduces students to basic computational methods for better understanding and solving problems in the physical sciences. Numerical techniques and computer architecture will be taught with the goal of applying these to situations in the physical sciences. Computational methods will be applied to problems that are not analytically tractable; for comparison, physical problems that are amenable to analysis will also be examined. The goal of the program is to enhance student understanding of numerical methods that will be of use in graduate school, academic research, and industry.

### Certificate Requirements

#### 1. Core Requirements

The following courses are required:

Three courses in Programming Languages, Numerical Methods, and Computer Architecture

CMSC106 **or** CMSC131 – Introduction to Programming  
AMSC460 Computational Methods  
AMSC462 Intro to Comp Organization and Tools for Scientific Computing

A course in which advanced computation is applied to scientific problems

PHYS474 Computational Physics **or**  
ASTR415 Computational Astrophysics

A science base

PHYS273 Introductory Physics: Waves **or**  
PHYS270 General Physics: Electrodynamics, Light, Relativity and Modern Physics **and**  
PHYS271 General Physics: Electrodynamics, Light, Relativity and Modern Physics Lab

**Note:** Any of CMSC106 **or** CMSC131, CMSC114 **or** CMSC132, CMSC214 **or** CMSC212, ENEE114, PHYS165, may be substituted for CMSC106 **or** CMSC131. AMSC466 may be substituted for AMSC460. CMSC311 and CMSC351 may be substituted for AMSC462.

#### 2. Electives

Elective courses must be chosen from the list below such that the entire sequence of courses for the Certificate meets the following two conditions: (a) at least 12 credit hours must be at the 300-400 level; (b) at least 12 credit hours must be outside the major. In the case of multiple majors, at least 12 credit hours must be outside all the other major requirements.

ASTR120 Introductory Astrophysics-Solar System (3)  
ASTR121 Introductory Astrophysics II-Stars and Beyond (4)  
ASTR320 Theoretical Astrophysics (3)  
ASTR415 Computational Astrophysics  
CMSC114 **or** CMSC132 Computer Science I (4)  
CMSC214 **or** CMSC212 Computer Science II (4)  
CMSC250 Discrete Structures (4)  
GEOL341 Structural Geology (4)  
MATH240 Introduction to Linear Algebra (4)  
MATH241 Calculus III (4)  
MATH246 Differential Equations for Scientists and Engineers (3)  
MATH431 Geometry for Computer Graphics (3)  
MATH452 Introduction to Dynamics and Chaos (3)  
MATH462 Partial Differential Equations for Scientists and Engineers (3)  
MATH464 Transform Methods to Scientists and Engineers (3)  
PHYS171 Introductory Physics: Mechanics and Relativity (3)  
PHYS272 Introductory Physics: Fields (3)  
PHYS273 Introductory Physics: Waves (3)  
PHYS374 Intermediate Theoretical Methods (4)  
{PHYS401 Quantum Physics I (4)  
**or** PHYS420 Principles of Modern Physics (3)}  
PHYS402 Quantum Physics II (4)  
PHYS404 Introduction to Statistical Thermodynamics (3)  
PHYS410 Classical Mechanics (4)  
PHYS411 Intermediate Electricity and Magnetism (4)  
PHYS474 Computational Physics

## Research

An honors program will provide opportunities for outstanding students to engage in research on a computational project with a faculty member. Students will be accepted into this program after their sophomore year based on their academic performance.

To obtain more information, contact the Applied Math and Scientific Computing Program, 3103 Mathematics Building, UMCP, Telephone: 301-405-0924, [www.amsc.umd.edu/](http://www.amsc.umd.edu/)

Course Code: AMSC

## ARCHITECTURE

For information, see the School of Architecture, Planning, and Preservation entry in chapter 6.

## ART (ARTT)

### College of Arts and Humanities

1211-E Art/Sociology Building  
Undergraduate Program 301-405-1445  
Graduate Program 301-405-7790  
[www.art.umd.edu](http://www.art.umd.edu)

Chair: Ruppert  
Undergraduate Director: Sham  
Graduate Director: Craig  
Professor Emerita: DeMonte†  
Professor Emeritus: Driskell††  
Professors: Fabiano, Lapinski, Ruppert, Sham  
Associate Professors: Craig, Humphrey, Kehoe, Klank, Lozner, McCarty, Richardson, Thorpe  
Assistant Professor: Gavin, Morse, Pinder  
Instructor: Jacobs  
Part Time: Tacha  
†Distinguished Scholar-Teacher  
††Distinguished University Professor

### The Major

The Department of Art is a place where students transform ideas and concepts into objects and visual experiences. It is an environment rich in art theory, criticism, and awareness of diverse world culture. Students are taught to articulate and refine creative thought and apply knowledge and skill to the making of images, objects, and experimental works. Courses are meaningful to students with the highest degree of involvement in the program and those who take electives. Students majoring in Art take a focused program of courses folded into a general liberal arts education offered by the university.

The diverse faculty of artists in the department strive to foster a sense of community through the common experience of the creative process, sharing their professional experience freely with students.

The areas of concentration within the major are design, drawing, painting, printmaking, digital imaging, and sculpture. Areas of study include papermaking, photography, and art theory. Internships and independent studies are also available.

### Requirements for Major

Undergraduate students are offered a Bachelor of Arts (B.A.) in Art . The requirements consist of a curriculum of 36 credits of art studio and art theory courses, and 12 additional credits of art history and art theory courses as a supporting area for a total of 48 major required credits. No course with a grade less than C may be used to satisfy major or supporting area requirements.

### Advising

The name of the advisor for each class is available in the department office. Each second-semester sophomore and first-semester senior is required to see his or her advisor within the department. Additionally, each student is strongly encouraged to see his or her advisor in the department each semester.

## 90 Art History and Archaeology

### Honors Program

The honors option is available to Art majors for the purpose of creating opportunities for in-depth study and enrichment in areas of special and creative interest. To qualify, students must be Art majors with junior or senior status, a major G.P.A. of 3.2, and an overall G.P.A. of 3.0. The program requires a total of 12 credits in Honors course work. One course (3 credits) must be taken at the 300-level, and three courses (3 credits each) at the 400-level. There is a thesis component in one of the 400-level courses. Please consult the Honors Advisor for additional information.

### Fieldwork and Internship Opportunities

Students in the past have worked in a variety of internship settings. These have included assisting professionals complete public commissions, commercial or cooperative gallery and exhibition duties, and working in professional artists' workshops in the Baltimore and Washington, D.C. metropolitan areas. Additional information is available in the Department of Art office.

### Scholarships and Awards

The Department of Art administers eight Creative and Performing Arts Scholarships (CAPAs) that are available to freshman and entering transfer students for the Fall semesters. This is a merit-based scholarship that is awarded on a one-year basis, and may be renewed. Additional information is available in the main office of the department. The James P. Wharton Prize is awarded to the outstanding Art major participating in the December or May graduation exhibition. The Van Crews Scholarship is designated for outstanding Art majors concentrating in design. It is awarded for one year and is renewable. The David C. Driskell Award for the Outstanding Graduating Graduate Student is awarded at the end of the academic year.

### Student Art Exhibitions

The West Gallery (1309 Art/Sociology Building) is an exhibition space devoted primarily to showing students' art work, and is administered by undergraduate art majors assisted by a faculty advisor.

### Lecture Program

The Department of Art has a lecture program in which artists and critics are brought to the campus to explore ideas in contemporary art. A strong component of this program is devoted to diversity.

Course Code: ARTT

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## ART HISTORY AND ARCHAEOLOGY (ARTH)

### College of Arts and Humanities

1211B Art/Sociology Building, 301-405-1479  
[www.arthistory\\_archaeology.umd.edu/](http://www.arthistory_archaeology.umd.edu/)

Chair: Promex

Professors: Hargrove, Kelly, Kuo, Mansbach, Pressly, Promey, Venit, Wheelock

Associate Professors: Colantuono, Gill, Spiro

Assistant Professors: Ater, Shannon

### The Major

The faculty and students of the Department of Art History and Archaeology form a dynamic nucleus within a major research university. The program, leading to the B.A. degree in Art History, provides a diverse selection of courses in the art and archaeology of Africa, Asia, Europe, and the Americas. The goal of the department is to develop the student's critical understanding of visual culture in both art historical and archaeological contexts. The numerous teaching awards won by faculty members indicate the department's concern for excellence in undergraduate education. In addition to its fine undergraduate program, the department offers graduate studies leading to the M.A. and Ph.D. degrees.

The department has strong coverage in Western art from the Classical period up to the present. In addition, by taking advantage of the unusual diversity of faculty interests, students can study in areas not traditionally offered in departments of art history and archaeology, such as art and archaeology of Africa, art of diaspora cultures, art and archaeology of the Americas, Eastern European art and Asian art. Grounding in art historical and archaeological theory and method is provided in a number of courses. Students are encouraged to supplement their art historical and archaeological studies with courses in other fields. Studies in archaeology may be pursued in cooperation with other University departments.

In addition to the university's excellent libraries, students can use the resources of the Library of Congress and other major area archives. The department is in the forefront of exploring digital imaging technologies for art historical and archaeological teaching, research, and publication.

The location of the university between Washington and Baltimore gives students the opportunity to use some of the finest museum and archival collections in the world for their course work and independent research. The department encourages students to hold internships at a number of these institutions. Curator/professors, exhibitions in the Art Gallery at the University of Maryland, interactive technologies, and the extensive use of study collections bring regional and distant museums into the classroom.

Close ties between the faculty and the undergraduate community are fostered through directed-study courses and undergraduate research assistantships. Selected students also gain valuable experience as undergraduate tutors for large lecture classes. The undergraduate Art History and Archaeology Association sponsors lectures, departmental gatherings, and field trips to museums on the East coast.

Requirements for the major in Art History are as follows: three ARTH courses (9 credits) at the 200 level; seven ARTH courses (21 credits) at the 300-400 level; either ARTT 100 or ARTT 110 (3 credits); a supporting area of four courses (12 credits) in coherently related subject matter outside the department of Art History and Archaeology at the 300-400 level. No credit toward the major can be received for ARTH 100 or 355. No course with a grade lower than C may be used to satisfy major or supporting area requirements.

### Advising

Departmental advising is mandatory for all majors.

### Honors Program

Qualified majors may participate in the department's honors program, which requires the completion of ARTH 496 (Methods of Art History) and ARTH 499 (Honors Thesis). Consult a departmental advisor for details.

### Awards

The Department of Art History and Archaeology offers three undergraduate awards each year: the J.K. Reed Fellowship Award to an upper-level major and the George Levitine and Frank DiFederico Book Awards to seniors nearing graduation.

Course Code: ARTH

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## ASIAN AND EAST EUROPEAN LANGUAGES AND CULTURES (ARAB, CHIN, EALL, HEBR, JAPN, KORA, PERS, RUSS, SLAV)

For information on these programs, consult the School of Languages, Literatures, and Cultures elsewhere in this chapter.

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## ASTRONOMY DEPARTMENT (ASTR)

### College of Computer, Mathematical, and Physical Sciences

1204 Computer and Space Sciences Bldg., 301-405-3001  
E-mail: [astrgrad@deans.umd.edu](mailto:astrgrad@deans.umd.edu)  
[www.astro.umd.edu](http://www.astro.umd.edu)

Chair: Mundy

Associate Director: Trasco

Professors: A'Hearn, Harrington, Papadopoulos, Rose, Vogel, Wilson

Professors Emeritus: Bell, Earl, Erickson, Kundu, Leventhal, Veilleux, Wentzel

Associate Professors: Hamilton, Harris, McGaugh, Miller, Ostriker, Reynolds

Assistant Professors: Richardson, Ricotti

Instructor: Deming

Lecturer: Hayes-Gehrise

Adjunct Professors: Gehrels, Holt, Mushotzky, White

Senior Research Scientists: Kundu, Lisse, Sharma

Associate Research Scientists: Arnaud, Balachandran, Killen, McFadden, Milikh, Pound, Schmahl, White, Wolfire

Assistant Research Scientists: Bandler, Hewagama, Lanz, Loewenstein, Markwardt, Ng, Nixon, Teuben

## The Major

The Astronomy Department offers courses leading to a Bachelor of Science in Astronomy as well as a series of courses of general interest to non-majors. Astronomy majors are given a strong undergraduate preparation in Astronomy, Mathematics, and Physics. The degree program is designed to prepare students for positions in government and industry laboratories or for graduate work in Astronomy or related fields. A degree in Astronomy has also proven valuable as preparation for non-astronomical careers.

## Requirements for Major

Astronomy majors are required to take a two-semester introductory Astronomy sequence: ASTR 120-121, an observing course ASTR 310 and an introductory Astrophysics course ASTR 320. Two additional 400-level Astronomy courses are also required.

Students majoring in Astronomy are also required to obtain a good background in Physics and in Mathematics. The normal required sequence is PHYS 171, 272, 273 and the associated labs PHYS 174, 275, 276. With the permission of the advisor, PHYS 161, 262, 263 can be substituted for this sequence. PHYS 374, 401, and 404 are required. Astronomy majors are also required to take a series of supporting courses in Mathematics. These are MATH 140, 141, 240, 241, and 246.

The program requires that a grade of C or better be obtained in all courses required for the major. Students planning to double major (or to seek a double degree) in Physics and Astronomy should note that this combination does not automatically satisfy CORE Advanced Studies. They should discuss the issue with their academic advisors to assure that their program meets all degree requirements.

Detailed information on typical programs and alternatives to the standard program can be found in the pamphlet entitled, "Department Requirements for a Bachelor of Science Degree in Astronomy" which is available from the Astronomy Department office.

## Facilities

The Department of Astronomy is a partner in the Combined Array for Research in Millimeter-Wave Astronomy (CARMA), which operates a millimeter wavelength radio array located near Bishop, California. The array is the largest and most sensitive array in the world. The Department is a partner with Kitt Peak National Observatory in the building of a large format near infrared camera for the Mayall 4-meter optical telescope. Opportunities are available for undergraduates to become involved in research with both facilities. The Department also operates a small observatory on campus. There are four fixed telescopes ranging in aperture from 20" to 7". There are also six portable 8" telescopes. Most of the telescopes now have CCD cameras and several are computer controlled. This facility is used extensively for undergraduate classes. An observatory Open House Program for the public is also run. Details are available from the Astronomy Department office.

## Courses for Non-Science Majors

There are a variety of Astronomy courses offered for those who are interested in learning about the subject but do not wish to major in it. These courses are designed especially for the non-science major. ASTR 100 and 101 are general survey courses in Astronomy. They cover (briefly) all the major topics in the field. ASTR 220 is an introductory course dealing with the topic, "Collisions in Space." Several 300-level courses are offered primarily for non-science students who want to learn about a particular field in depth, such as the Solar System, Stellar Evolution, the Origin of the Universe or Life in the Universe.

## Minor

A Minor in Astronomy may be earned by completing (with grades of C or better) an introductory course-like ASTR 100 or ASTR 101, ASTR 220 and three of the following: ASTR 300, 330, 340, 380 or 498. Contact Department for rules and procedures.

## Honors

The Honors Program offers students of exceptional ability and interest in Astronomy opportunities for part-time research participation which may develop into full-time summer projects. Honors students work with a faculty advisor on a research project for which academic credit may be earned. Certain graduate courses are open for credit toward the bachelor's degree. (Students are accepted into the Honors Program by the Department's Honors Committee on the basis of grade point average or recommendation of faculty.) Honors candidates submit a written proposal on their research project and enroll in ASTR 399, complete a research project, write a thesis and do an oral presentation before a committee. Satisfactory grades lead to graduation "With Honors (or High Honors) in Astronomy."

## For Additional Information

Further information about advising and the Honors Program can be obtained by calling the Department of Astronomy office at 301-405-3001. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Departmental Advisor to make appropriate plans.

Course Code: ASTR

## ATMOSPHERIC AND OCEANIC SCIENCE

### College of Computer, Mathematical, and Physical Sciences

3417 Computer and Space Sciences Building, New Wing 301-405-5391  
[www.atmos.umd.edu](http://www.atmos.umd.edu)

Professor and Chair: Dickerson  
Professors: Baer (Emeritus), Busalacchi, Carton, Ellingson (Emeritus), Hudson, Kalnay, Li, Nigam, Pinker, Thompson, Vernekar (Emeritus), Zhang  
Associate Professor: Murtugudde, Zeng  
Assistant Professor: Kirk-Davidoff  
Research Professor: Rasmusson  
Research Associate Professor: Berbery, Doddridge  
Adjunct Professor, Michael King, Anne Thompson, Robert Atlas, William K. Lau

The Department of Atmospheric and Oceanic Science offers several courses to undergraduate students. Undergraduates can take courses individually or as part of a Minor in Meteorology which can prepare them for careers in Atmospheric and Oceanic Science and Earth Sciences or for graduate studies in these areas. Three Minor tracks are available:

Minor in Meteorology  
Minor in Atmospheric Sciences  
Minor in Atmospheric Chemistry

The Minor in Meteorology is the most suitable preparation for graduate students in Atmospheric and Oceanic Science. For more details visit: [atmos.umd.edu/MINOR](http://atmos.umd.edu/MINOR) or contact the Undergraduate Advisor, R. Hudson: ([hudson@atmos.umd.edu](mailto:hudson@atmos.umd.edu)).

The following undergraduate courses are offered:

AOSC 123 Global Change—Implications of Global Climate Change  
AOSC 200 Weather & Climate—Atmospheric sciences and forecasting  
AOSC 201 Weather & Climate Lab—Laboratory for AOSC 200  
AOSC 375 Introduction to the Blue Ocean—Physical, Chemical and Biological Properties of the Ocean  
AOSC 400 The Atmosphere—Weather and Climate Systems  
AOSC 401 Global Environment—The Atmosphere-Ocean-Biosphere  
AOSC 431 Atmospheric and Oceanic Science for Scientists and Engineers I  
AOSC 432 Atmospheric and Oceanic Science for Scientists and Engineers II  
AOSC 434 Air Pollution—Generation, transport and removal of air pollutants  
AOSC 499 Special Problems in Atmospheric Sciences—Research in Atmospheric Sciences

Undergraduates can also pursue a bachelor's degree in Physical Sciences or Physics, which has a specialty in Atmospheric and Oceanic Science. The advisor for the Physical Sciences program, Tom Gleason, can be contacted at [tgleason@physics.umd.edu](mailto:tgleason@physics.umd.edu). Students who anticipate careers in Atmospheric and Oceanic Science should consult the undergraduate advisor of the Department of Atmospheric and Oceanic Science as early as possible in their studies.

## BIOLOGICAL RESOURCES ENGINEERING (ENBE)

### College of Agriculture and Natural Resources and A. James Clark School of Engineering

1457 An. Sci./Biological Resources Engr. Building, 301-405-1198  
E-mail: [tscites@umd.edu](mailto:tscites@umd.edu)  
[www.bre.umd.edu](http://www.bre.umd.edu)

Acting Chair: Baldwin  
Professors: Johnson, Ross, Shirmohammadi, Tao, Wheaton  
Associate Professors: Baldwin, Felton, Kangas, Montas  
Assistant Professors: Becker, Tilley



## 92 Biological Resources Engineering

Emeriti: Brodie, Grant, Harris, Krewatch, Merrick, Stewart  
Adjunct Professors: Chen, Rawls  
Adjunct Associate Professor: Adams

### The Major

This program is for students who wish to become engineers but who also have serious interest in biological systems and how the physical and biological sciences interrelate. The biological and the engineering aspects of plant, animal, genetic, microbial, medical, food processing, and environmental systems are studied. Graduates are prepared to apply engineering, mathematical, and computer skills to the design of biological systems and facilities. Graduates find employment in design, management, research, education, sales, consulting, or international service.

### Requirements for Major

Biological Resources Engineers can prepare themselves for a wide variety of careers. Each student has the opportunity to specialize by taking technical electives in their interest area. Biological and engineering technical electives are chosen in consultation with their Departmental Advisor. While individuals have chosen to specialize in areas ranging from aquacultural engineering to biomedical engineering to food engineering, four specific focus areas are supported by the Department.

### Bioenvironmental and Ecosystem Engineering

Bioenvironmental and Ecosystem Engineering is a focus area that concentrates on using principles of biological, environmental and engineering sciences to study the interacting processes necessary for a healthy environment. Students interested in this focus area need to strengthen their background in soils, ecosystem biology, natural resources, chemistry, fluids, hydrology, and pollution processes.

### Biomedical Engineering

Biomedical engineering is a focus area that examines the wide range of activities in which the disciplines of engineering and biological or medical science intersect. Representative areas include: design of diagnostic and therapeutic devices for clinical use; development of biologically compatible materials; physiological modeling; and many others.

### Biotechnological Engineering

Biotechnological Engineering is a focus area that applies scientific and engineering principles to the processing of materials by biological agents. Examples of products available as a result of biotechnology include antibiotics, vaccines, fuels such as ethanol, dairy products, and microbial pesticides.

### Pre-medicine/Pre-veterinary

The pre-professional program for pre-medical and pre-veterinary students advises students preparing to apply to graduate programs in these areas. The Departmental Advisors assist students in setting career objectives, and in selecting undergraduate course work to meet the admissions criteria of the professional schools. Advisors help students select proper chemistry and biological science required course sequences.

### Educational Objectives

The objective of the undergraduate Biological Resources Engineering program is to produce engineers with:

1. The ability to design products and processes related to biological systems.
2. The ability to communicate well, especially with engineers and non-engineering biological specialists.
3. The ability to work successfully in teams.
4. The ability to conceptually categorize information, especially biological information, in order to deal effectively with technical advances coming at a rapid pace.
5. Provide engineering education with a solid grounding in fundamentals that will have lifelong value.

6. Provide understanding of human behavior, societal needs and forces, and the dynamics of human efforts and their effects on the environment.

### Biological Resources Engineering Curriculum

#### Freshman Year

|   |           |
|---|-----------|
| ENES 100 Introduction to Engineering Design | 3         |
| *MATH 140 Calculus I                        | 4         |
| *CHEM 135 General Chemistry I               | 3         |
| *BSCI 105 Principles of Biology I           | 4         |
| ENBE 110 Intro. to Bio. Res. Engineering    | 1         |
| <b>Total</b>                                | <b>15</b> |

|                                  |           |
|----------------------------------|-----------|
| ENES 102 Statics                 | 3         |
| *MATH 141 Calculus II            | 4         |
| *CHEM 136 General Chemistry II   | 1         |
| *PHYS 161 General Physics        | 3         |
| ENGL 101 Introduction to Writing | 3         |
| <b>Total</b>                     | <b>14</b> |

#### Sophomore Year

|                                 |           |
|---------------------------------|-----------|
| CHEM 231 Organic Chemistry      | 3         |
| CHEM 232 Organic Chemistry Lab  | 1         |
| BSCI 223 General Microbiology   | 4         |
| ENES 220 Mechanics of Materials | 3         |
| *PHYS 260 General Physics       | 3         |
| PHYS 261 General Physics Lab    | 1         |
| <b>Total</b>                    | <b>15</b> |

|  |           |
|--|-----------|
| MATH 246 Differential Equations for Scientists and Engineers | 3         |
| ENME 232 Thermodynamics                                      | 3         |
| ENBE 241 Computer Use in Bioresource Engineering             | 3         |
| BSCI 230 Cell Biology and Physiology                         | 4         |
| *CORE <sup>1</sup>   | 3         |
| <b>Total</b>   | <b>16</b> |

#### Junior Year

|   |           |
|---|-----------|
| ENBE 453 Introduction to Biological Materials | 3         |
| ENBE 455 Basic Electronic Design              | 3         |
| ENME 331 Fluid Mechanics                      | 3         |
| or ENCE 305 Basic Fluid Mechanics             |           |
| MATH 241 Calculus III                         | 4         |
| *CORE <sup>1</sup>                            | 3         |
| <b>Total</b>                                  | <b>16</b> |
| ECON 200 or 201 Principles of Economics       | 4         |
| or (approved substitute)                      |           |
| ENBE 454 Biological Process Engineering       | 4         |
| [BIOL SCI: Technical Elective] <sup>3</sup>   | 3         |
| [ENGR SCI: Technical Elective] <sup>3</sup>   | 3         |
| *CORE <sup>1</sup>                            | 3         |
| <b>Total</b>                                  | <b>17</b> |

#### Senior Year

|   |           |
|---|-----------|
| ENBE 471 Biological Systems Control         | 3         |
| ENBE 422 Water Resources Engineering        | 3         |
| or ENBE 456 Biomedical Instrumentation      |           |
| ENBE 485 Capstone Design I                  | 1         |
| [BIOL SCI: Technical Elective] <sup>3</sup> | 3         |
| ENGL 393 Technical Writing                  | 3         |
| *CORE <sup>1</sup>                          | 3         |
| <b>Total</b>                                | <b>16</b> |
| ENBE 482 Dynamics of Biological Systems     | 1         |
| ENBE 484 Engineering in Biology             | 3         |
| ENBE 486 Capstone Design II                 | 2         |
| [ENGR SCI: Technical Elective] <sup>3</sup> | 6         |
| *CORE <sup>1</sup>                          | 3         |
| <b>Total</b>                                | <b>15</b> |

\*Satisfies General Education Requirements

<sup>1</sup>Students must consult with an advisor on selection of appropriate courses for their particular area of study.

<sup>2</sup>No 300-level and above courses may be attempted until 56 credits have been earned.

<sup>3</sup>Technical electives, related to field of concentration, must be selected from a departmentally approved list.

**Biological Sciences (BIOL SCI) technical electives** may be chosen, depending on students' interests, from an approved list of courses in the following programs: Animal Sciences, Chemistry/Biochemistry, Entomology, Nutrition and Food Science, Geography, Geology, Hearing and Speech, Health, Horticulture, Kinesiology, Meteorology, Microbiology, Natural Resources Management, Natural Resources Sciences, Plant Biology, Psychology, and Zoology.

**Engineering Sciences (ENGR SCI) technical electives** may be chosen, also depending on students' interests, from among the following programs: Aerospace Engineering, Biological Resources Engineering, Civil Engineering, Chemical Engineering, Electrical Engineering, Fire Protection Engineering, Mechanical Engineering, and Materials and Nuclear Engineering.

## Admission/Advising

All Biological Resources Engineering majors must meet admission, progress, and retention standards of the Clark College of Engineering, but may enroll through either the College of Agriculture and Natural Resources or the School of Engineering.

Advising is mandatory; call 301-405-7357 or 301-405-1198 to schedule an appointment. Contact departmental academic advisors to arrange teaching or research internships.

## Financial Assistance

The department offers four scholarships specifically for Biological Resources Engineering majors. Cooperative education (work study) programs are available through the Clark School of Engineering. Part-time employment is available in the department, in USDA laboratories located near campus, and at other locations.

## Honors and Awards

Outstanding students are recognized each year for scholastic achievement and for their contribution to the department, college, and university. Top students are selected for Alpha Epsilon, the Honor Society of Biological Resources Engineering, and Tau Beta Pi, the engineering honor society.

## Student Organization

Join BRES, the Biological Resources Engineering Society. Academic advisors will tell you how to become a participant.

Course Code: ENBE

## BIOLOGICAL SCIENCES PROGRAM

### College of Chemical and Life Sciences

1322 Symons Hall, 301-405-6892

Academic Undergraduate Programs Office

Associate Director of Academic Undergraduate Programs: Joelle Presson

[www.chemlife.umd.edu](http://www.chemlife.umd.edu)

### The Major

The Biological Sciences major is jointly offered by the Departments of Biology, Cell Biology & Molecular Genetics, and Entomology. All Biological Sciences majors complete a common sequence of introductory and supporting courses referred to as the Basic Program. In addition, students must complete an Advanced Program within one of the following specialization areas:

Cell Biology & Genetics (CEBG)  
Ecology & Evolution (ECEV)  
General Biology (GENB)  
Microbiology (MICB)  
Physiology & Neurobiology (PHNB)  
Individualized Studies (BIVS)

A complete list of specialization area requirements can be found on our website, [www.chemlife.umd.edu](http://www.chemlife.umd.edu). Note that the Individualized Studies specialization (BIVS) requires permission of the Associate Director of Undergraduate Academic Programs, and involves an approved proposal to do coursework in the College and in other disciplines. Further questions about Biological Sciences can be directed to the Undergraduate Academic Program Office at 301-405-6892.

## Requirements for Major

|   | Semester<br>Credit Hours |
|---|--------------------------|
| CORE Program  | 30                       |
| Basic Program in Biological Sciences                            | 15-16                    |
| BSCI105 Principles of Biology I                                 |                          |
| BSCI106 Principles of Biology II                                |                          |
| BSCI 207 Principles of Biology III                              |                          |
| BSCI222 Principles of Genetics                                  |                          |
| Supporting courses  | 30-32                    |
| Math 220 <b>or</b> 140 Calculus I                               |                          |
| MATH 221 <b>or</b> 141 Calculus II                              |                          |
| *CHEM 131 & 132 Fundamentals of General Chemistry               |                          |
| CHEM 231 & 232 Organic Chemistry I                              |                          |
| CHEM 241 & 242 Organic Chemistry II                             |                          |
| *CHEM 271 & 272 Gen. Chem. & Energetics, Gen. Bioanalytical Lab |                          |
| PHYS 121 <b>or</b> 141 Physics I                                |                          |
| PHYS 122 <b>or</b> 142 – Physics II                             |                          |
| *New chemistry courses replace CHEM 103 and CHEM 113            |                          |
| Advanced Program in Specialization Area                         | 27                       |
| See website for details of specialization Area requirements.    |                          |
| Electives   | 15-18                    |

A grade of C or better is required for BSCI 105, 106, 222, the diversity course, all courses in the Advanced Program, and all supporting courses (math, chemistry, and physics). Majors in Biological Sciences cannot use any Chemical and Life Sciences course to fulfill CORE Advanced Studies requirements, including courses in CHEM or BCHM.

## Advising

Advising is mandatory during each pre-registration period for all Biological Sciences majors. All freshmen and new transfer students will be assigned an advisor from the College of Chemical and Life Sciences advising staff. Students will be assigned to a departmental faculty advisor once a basic sequence of courses has been successfully completed. The departmental faculty advisors are coordinated by the following persons for the indicated specialization areas. These coordinating advising offices can be contacted for making appointments with an advisor or for any other information regarding that specialization area.

|                            |  |                              |   |
|----------------------------|--|------------------------------|---|
| <b>Straney<br/>Compton</b> | 1225 H.J. Patterson<br>2227 Biology-Psychology | 301-405-2766<br>301-405-6904 | CEBG, GENB, MICB<br>ECEV, PHNB          |
| <b>Kent<br/>Presson</b>    | 3142 Plant Sciences<br>1322 Symons Hall        | 301-405-3911<br>301-405-6892 | GENB<br>BIVS, Education<br>Double major |

## Honors

Outstanding students are encouraged to apply to departmental Honors Programs. Through the Honors Programs students will become actively involved in the ongoing scientific research at the university. Information about these honors programs may be obtained from the Associate Director.

Course Code: BSCI

## BIOLOGY (BIOL)

### College of Chemical and Life Sciences

2227 Biology-Psychology Building, 301-405-6904

E-mail: [biolugrad@umail.umd.edu](mailto:biolugrad@umail.umd.edu)

Professor and Chair: Payne

Associate Chairs: Compton, Forseth

Professors: Borgia, Carr, Cohen, Colombini, Gill, Inouye, Jeffery, O'Connor, Popper, Reaka-Kudla, Via, Wilkinson

Associate Professors: Ades, Cummings, Dietz, Dudash, Fagan, Fenster, Forseth, Higgins, Poeppel, Shaw, Small, Sukharev, Tishkoff

Assistant Professors: Araneda, Bely, Castillo-Davis, Haag, Hare, Lee, Quinlan, Simon, Soares

Senior Lecturers: Compton, Infantino

Lecturers: Arnot, Jensen, Koines, Opoku-Edusei

Professors Emeriti: Anastos, Clark, Corliss, Haley, Highton, Pierce

Director of Graduate Studies: Forseth

Director of Office of Undergraduate Studies: Compton

## 94 Business, General

The Department of Biology (comprised of former Zoology and some former Plant Biology department faculty) participates in teaching and advising in the inter-departmental undergraduate Biological Sciences Program (see separate listing). Faculty interest and expertise span levels of organization from molecules to ecosystems in animals and plants.

### Requirements for Specialization

See Biological Sciences Program elsewhere in this chapter, or contact the Department of Biology Undergraduate Office.

### Advising

Advising in the Biological Sciences program is mandatory. Students are assigned an advisor based on their area of specialization. The Department of Biology faculty coordinate and advise students who specialize in Physiology and Neurobiology (PHNB), and Ecology and Evolution (ECEV). Contact the Department of Biology Undergraduate Office, 405-6904, for information about advising or to schedule an appointment. For advising in other Biological Sciences Specialization areas, see the Biological Sciences Program listing in this catalog.

### Honors

The Department of Biology Honors Program offers highly motivated and academically qualified students the opportunity to work closely with a faculty mentor on an original, independent research project. Students are required to participate in the program for at least three semesters and need not have been admitted University Honors program in order to participate. Contact the undergraduate office for more information.

Course Code: BSCI

## BUSINESS, GENERAL

For information, consult the Robert H. Smith School of Business entry in chapter 6.

## CELL BIOLOGY AND MOLECULAR GENETICS

### College of Chemical and Life Sciences

Microbiology Building, 301-0405-5435  
[www.cbmg.umd.edu](http://www.cbmg.umd.edu)

Chair: Wolniak

Director of Undergraduate Studies: Straney

Professors: Bean, Cooke, Hutcheson, Mosser, Simon, Stein, Sze, Wolniak

Associate Professors: Benson, Chang, Delwiche, DeStefano, Dinman, Liu, Mount, Song, Stewart, Straney

Assistant Professors: Briken, Buck, DiRuggerio, Frauwrith, Fredrickson, Gao, Kwak, Mclver

Instructor: Smith

Lecturers: Shields, Moctezuma

Professors Emeriti: Collwell, Cook, Doetsch, Hetrick, Joseph, Kantzes, Patterson, Pelczar, Reveal, Roberson, Weiner, Yuan

Affiliate Assistant Professors: Perez, Hamza

Affiliate Associate Professor: Pick

Affiliate Professors: Colombini, Jeffery, Mather, Saltzberg

Adjunct Assistant Professors: Hall, Wu

Adjunct Associate Professors: Baehrecke, Culver, Freed, Green

Adjunct Professors: Moss, Nuss, Vakharia, White, Wickner

Research Assistant Professors: del Campillo, Cunningham

### The Majors

The department participates in the teaching and advising of students in the Biological Sciences Program, specifically in the Specialization Areas of Cell Biology & Genetics (CEBG), Microbiology (MICB), and General Biology (GENB). Our courses are taught in four basic areas that represent faculty research interests and expertise including:

- Cell and Developmental Biology
- Genetics and Genomics
- Microbiology, Microbial Pathogenesis and Immunology
- Plant Biology

### Requirements for the Specialization Areas

See Biological Sciences Program catalog entry for more information on the degree requirements.

### Advising

Advising is mandatory. The Department in coordination with the Student Affairs Office of the College of Chemical and Life Sciences administers the advising of students in the Biological Sciences specialization areas of Microbiology, Cell Biology and Genetics, and General Biology. Advising assignments can be found by contacting the Cell Biology and Molecular Genetics Undergraduate Program Office, 1225 H.J. Patterson Hall (301-405-2766) or see the site: [www.cbmg.umd.edu/undergrad/advising.com](http://www.cbmg.umd.edu/undergrad/advising.com).

### Research Experience and Internships

Students may participate in Department hosted research experiences in faculty laboratories or laboratories at off campus locations. Please contact the Cell Biology and Molecular Genetics Undergraduate Office for more information or see the site: [www.cbmg.umd.edu/undergrad/research.html](http://www.cbmg.umd.edu/undergrad/research.html)

### Honors and Awards

The Departmental Honors Program involves a long term (three semester) independent research project undertaken with a faculty advisor. Please contact the Cell Biology and Molecular Genetics Undergraduate Office for more information or see the site: [www.cbmg.umd.edu/undergrad/research.html](http://www.cbmg.umd.edu/undergrad/research.html)

The P. Arne Hansen Award is awarded annually to a Departmental Honors student who has demonstrated outstanding achievement through the research experience. The Sigma Alpha Omicron Award is giving to outstanding seniors who have excelled in the areas of Microbiology, or in Cell Biology and Genetics. The Appleman-Norton Award is given to the senior who has excelled in the area of Plant Biology.

### Student Organizations

All students interested in microbiology are encouraged to join the University of Maryland Student Chapter of the American Society for Microbiology. Sigma Alpha Omicron is the honors chapter of this group. The groups meet regularly on campus. Information is available through the Undergraduate Program Office.

## CENTRAL EUROPEAN, RUSSIAN, AND EURASIAN STUDIES (CERE)

### College of Arts and Humanities

2115 Francis Scott Key Hall, 301-405-4295  
[www.ceres.umd.edu](http://www.ceres.umd.edu)

Director: Michael David-Fox

Professors: Herf (History), Mansbach (Art History and Archaeology), Brecht (Asian and East European), Tismaneanu (Government and Politics), Lampe (History), Murrell (Economics), Robinson (Sociology), Ruzenblit (History)

Associate Professors: Gor, Hitchcock, Lekic, and Martin (Asian and East European), Kaminski (Government and Politics), M. David-Fox (History), Schuler (Theatre)

Assistant Professors: Papazian (Asian and East European), K. David-Fox (History)

**Departmental advising is mandatory for second-semester sophomores**

### The Major

CERE offers courses leading to a Bachelor of Arts degree. Students in the program study Russian, Eurasian, and Central/East European culture as broadly as possible, striving to comprehend it in all its aspects rather than focusing their attention on a single element of human behavior. It is hoped that insights into the region's ways of life will be valuable not only as such but as a means to deepen students' awareness of their own society and of themselves.

Course offerings are in a range of departments, including Asian and East European Languages and Cultures, Government and Politics, History, Economics, Jewish Studies, Sociology, Theatre, and Germanic Studies.

Requirements for the CERE major include the College of Arts and Humanities requirement of 45 upper-level credits completed. The College's foreign-language requirement will be automatically fulfilled in the process of fulfilling the CERE requirement of taking either Russian, German, or a Central/East European language (including Czech, Polish, Hungarian, Serbian and Croatian, Bulgarian, and Romanian). The language requirement can also be fulfilled by a Eurasian language (i.e. a language from a country formerly part of the Soviet Union). Those interested in fulfilling the CERE language requirement through a Central/East European or Eurasian language should consult the Director upon entering the program.

Students on the Russian language track must complete a minimum of 24 credit hours in the Russian language and literature courses selected among the following equivalent courses: RUSS 101, 102, 201, 202, 301, 302, 303, 321, 322, 401, 402, 403, 404. Students interested in specializing primarily on Central/Eastern Europe have the option of the German language track, and must complete a minimum of 24 credit hours in the Department of Germanic Studies selected among the following equivalent courses: GERM 103, 203, 301, 302. Students on the Central/East European language track must complete the equivalent of 24 credits hours of language study. Also accepted will be 16 credit hours of Russian or German and the equivalent of 8 credit hours of a Central/East European language. Fulfilling the language requirement through a Eurasian language (a language of a country of the former Soviet Union, such as Ukrainian, a Central Asian or Transcaucasian language) will be decided on a case-by-case basis in consultation with the director.

The student's advisor will be the program director or the designate. The student must receive a grade of C or better in all required courses.

In addition to language courses, students must complete 24 hours in CERE courses at the 300-level or above. These 24 hours must be taken in at least four different departments (with the School of Languages, Literatures and Cultures counting as a single department), and may include language-literature courses beyond the required 24 hours. Of the 24 hours, at least 9 hours must be in those CERE courses with substantial and specific focus on Central/East Europe (for example, ARTH 488C, GVPT 359, 409, HIST 319, 340, 443 and other special courses offered in the CERE area with the approval of the director) and at least 9 hours must be in those CERE courses with substantial and specific Russian/Eurasian focus (for example, GEOG 325, GVPT 445, 451, 459A, 481, HIST 344, 424, 425, 442, SOCY 474, THET 499, and other special courses offered in the CERE area with the approval of the director).

For a full listing of CERE courses, see the website [www.ceres.umd.edu](http://www.ceres.umd.edu), and click on "requirements."

The various cooperating departments also offer special (i.e. non-permanent) seminars and courses in the Russian, East European, and Eurasian field. HIST 237, Russian Civilization, is recommended as a general introduction to the program but does not count toward the fulfillment of the programs' requirements.

## CHEMICAL AND BIOMOLECULAR ENGINEERING (ENCH)

### A. James Clark School of Engineering

2113 Chemical and Nuclear Engineering Bldg., 301-405-1935  
[www.ench.umd.edu/](http://www.ench.umd.edu/)

Associate Professor and Acting Chair: Adomaitis  
Associate Chair for Undergraduate Studies: Wang  
Associate Chair for Graduate Studies: Ehrman  
Professors: Anisimov, Barbari, Bentley, Calabrese, Choi, Greer, Weigand  
Associate Professors: Adomaitis, Ehrman, Kofinas, Wang, Zafiriou  
Assistant Professors: Aranda-Espinoza, Dimitrakopoulos, Fisher, Raghavan  
Emeriti: Gentry, McAvoy, Regan, Sengers, Smith  
Adjunct Professors: DiMarzio, Klapa, Quackenbush, Wesson, Yang  
\*\*Adjunct

### The Major

The educational mission of the Chemical Engineering program is to provide students with a fundamental understanding of physical, chemical and biological processes and with the ability to apply molecular and biomolecular information and methods of discovery into products and the processes by which they are made. Our program provides the unique interdisciplinary academic foundation and scholarly training needed to address complex engineering problems with emphasis on the advancing fields of biological engineering and nanotechnology.

The educational objectives of the Chemical Engineering degree program are to:

1. Provide students with a solid foundation in chemical engineering science fundamentals as well as a broad background in science and mathematics to equip them to enter professional and chemical engineering practice and to enter graduate study at leading universities.

2. Prepare students to excel in traditional chemical engineering careers and diverse careers in areas such as biotechnology, nanotechnology, medicine, law or business.
3. Produce graduates who are equipped with quantitative problem solving, teamwork, communication skills, and a sense of ethics that will serve them throughout their careers.

### Requirements for Major

The curriculum is composed of:

1. The required CORE (general education) requirements of College Park.
2. A core of mathematics (four semesters), physics (three semesters), chemistry (one freshman chemistry course, two organic chemistry courses, and two physical chemistry courses – lecture+ laboratory), and engineering sciences required of all engineering students.
3. The required core of 34 credits of ENCH courses which include ENCH215, ENCH250, ENCH300, ENCH333, ENCH400, ENCH422, ENCH424, ENCH426, ENCH437, ENCH440, ENCH442, ENCH444, and ENCH446.
4. Twelve credits of ENCH technical electives. A sample program follows.

|   | Semester  |           |
|---|-----------|-----------|
|   | I         | II        |
| <b>Freshman Year</b>                        |           |           |
| ENES 100 Introduction to Engineering Design | 3         |           |
| ENES 102 Statics                            |           | 3         |
| MATH 140 Calculus I                         | 4         |           |
| MATH 141 Calculus II                        |           | 4         |
| CHEM 135 Chemistry for Engineers, Lecture   | 3         |           |
| CHEM 136 Chemistry for Engineers, Lab       | 1         |           |
| ENGL 101 Introduction to Writing            | 3         |           |
| PHYS 161 General Physics I                  |           | 3         |
| CORE Program Requirements                   |           | 6         |
| <b>Total Credits</b>                        | <b>14</b> | <b>16</b> |

|   |           |           |
|---|-----------|-----------|
| <b>Sophomore Year</b>                               |           |           |
| MATH 241 Calculus III                               | 4         |           |
| MATH 246 Differential Equations                     |           | 3         |
| PHYS 260 General Physics II                         | 3         |           |
| PHYS 261 General Physics II Lab                     | 1         |           |
| PHYS 270 General Physics III                        |           | 3         |
| PHYS 271 General Physics III Lab                    |           | 1         |
| CHEM 231 Organic Chemistry                          | 3         |           |
| CHEM 232 Organic Chemistry I Lab                    | 1         |           |
| CHEM 241 Organic Chemistry II                       |           | 3         |
| CHEM 242 Organic Chemistry II Lab                   |           | 1         |
| ENCH 215 Chemical Engineering Analysis              | 3         |           |
| ENCH 250 Computer Methods in Chemical Engineering   |           | 3         |
| ENCH 300 Chemical Process Thermodynamics (Thermo I) |           | 3         |
| CORE Program Requirements                           | 3         |           |
| <b>Total</b>  | <b>18</b> | <b>17</b> |

|   |           |           |
|---|-----------|-----------|
| <b>Junior Year</b>  |           |           |
| ENES 230 Introduction to Materials and Their Applications | 3         |           |
| CHEM 482 Physical Chemistry II                            |           | 3         |
| CHEM 483 Physical Chemistry Laboratory I                  | 2         |           |
| ENCH 400 Chemical Engineering Thermodynamics (Thermo II)  | 3         |           |
| ENCH 333 Seminar  |           | 1         |
| ENCH 422 Transport Processes I                            | 3         |           |
| ENCH 424 Transport Processes II                           |           | 3         |
| ENCH 426 Transport Processes III                          | 3         |           |
| ENCH 440 Chemical Engineering Kinetics                    |           | 3         |
| ENCH 442 Chemical Engineering Systems Analysis            |           | 3         |
| ENGL 393 Technical Writing                                | 3         |           |
| CORE Program Requirements                                 |           | 3         |
| <b>Total</b>  | <b>17</b> | <b>16</b> |

|  |           |           |
|--|-----------|-----------|
| <b>Senior Year</b>                                   |           |           |
| ENCH 437 Chemical Engineering Lab                    | 3         |           |
| ENCH 444 Process Engineering Economics and Design I  | 3         |           |
| ENCH 446 Process Engineering Economics and Design II |           | 3         |
| ENCH Technical Electives*                            | 6         | 6         |
| CORE Program Requirements                            | 3         | 6         |
| <b>Total</b>   | <b>15</b> | <b>15</b> |

Minimum Degree Credits: 128 credits and fulfillment of all Departmental, College, and University requirements with a cumulative grade point average of 2.0

## 96 Chemistry and Biochemistry

\*Students must consult with an advisor on selection of appropriate courses for their particular course of study.

### Technical Electives Guidelines

Twelve credits of ENCH technical electives are required. It is recommended that they be taken during the senior year.

The senior ENCH technical electives are 400-level chemical engineering courses, including ENCH468x, and a limited number of approved 400-level technical courses from outside chemical engineering. Students should select electives with the help of an academic advisor. Normally at least three of the four technical electives should be ENCH4XX; the fourth elective may be chosen from ENCH or from an approved list of non-ENCH technical courses. Business or non-technical courses are normally not approved.

One of the electives must have significant mathematical content, and one of the electives must have significant biological content. Selection of the electives with significant mathematical or biological content is subject to the above constraint that at least three of the four electives are normally ENCH courses.

Upon the approval of the academic advisor and written permission of the Department, a limited number of substitutions may be permitted. Substitutes, including ENCH468 Research (1-3 credits), must fit into an overall plan of study emphasis and ensure that the plan fulfills the accreditation design requirements. Students may elect to specialize in a specific area such as Biological Engineering or Nanotechnology and Macromolecular Science; or they may sample a variety of elective courses. Upon graduation, those who specialize in a particular technical area will receive a letter in recognition of their accomplishment from the Chair and the Director of Undergraduate Studies of the Chemical Engineering Department. A list of technical electives are posted at: [www.ench.umd.edu/undergrad](http://www.ench.umd.edu/undergrad).

### Admission

All Chemical Engineering majors must meet admission, progress, and retention standards of the Clark School of Engineering.

### Advising

All students choosing Chemical Engineering as their primary field must see an undergraduate advisor each semester. Appointments for advising can be made at 2113 Chemical and Nuclear Engineering Building, 301-405-1935.

### Co-op Program

The Chemical Engineering program works within the Clark School of Engineering Cooperative Engineering Education Program. For information on this program consult the Clark School of Engineering entry in chapter 6 of this catalog or call 301-405-3863.

### Financial Assistance

Financial aid based upon need is available through the Office of Student Financial Aid. A number of scholarships are available through the Clark School of Engineering. Part-time employment is available in the department.

### Honors and Awards

Annual awards are given to recognize scholarship and outstanding service to the Department, College and University. These awards include the David Arthur Berman Memorial Award, the Engineering Society of Baltimore Award, and the American Institute of Chemical Engineers (AIChE) Award for the outstanding senior in Chemical Engineering. Chairman's awards are given to the junior with the highest cumulative GPA as well as to the outstanding junior and outstanding senior in Chemical Engineering.

### Student Organizations

Students operate a campus student chapter of the professional organization, the American Institute of Chemical Engineers. Omega Chi Epsilon is the honorary Chemical Engineering Society.

Course Code: ENCH

## CHEMISTRY AND BIOCHEMISTRY (CHEM, BCHM)

### College of Chemical and Life Sciences

0107H Chemistry Building, 301-405-1788

[www.chem.umd.edu](http://www.chem.umd.edu)

Student Information: 2102 Chemistry Building, 301-405-1791

[www.chem.umd.edu/undergrad/Frontpage.html](http://www.chem.umd.edu/undergrad/Frontpage.html)

Professor and Chair; Doyle

Associate Chairs: Ammon, Falvey, Reutt-Robey

Director, Undergraduate Programs: Montague-Smith

Professors: Alexander††, Allewell, Ammon, Beckett, Blough, Davis, DeShong†, Doyle, Eichhorn†, Falvey, Fenselau, Fourkas†††, Greer, Kahn, Lorimer††, Mignerey†, Miller, Ondov, Reutt-Robey, Rokita, Sita, Thirumalai, Tossell, Walters, Weeks††

Associate Professors: Fushman, Isaacs, Jarzynski, Julin, Kahn, Lee, C., Mullin, Munoz, Murphy, Walker

Assistant Professors: English, Cropp, Gerratana, Hu, Kosov, Lee, S., Vedernikov

Instructors: Ebrahimian, Rebbert

Lecturers: Boehmler, Dixon, Koppel, McDermott-Jones, Montague-Smith, Steffek, White

Emeriti: Bellama, Boyd, DeVoe, Freeman, Grim, Hansen, Helz, Henery-Logan, Holmlund, Huheey, Jaquith, Jarvis, Kasler, Khanna, Mazzocchi, McNesby, Moore, Munn, O'Haver, Pratt, Sampugna, Stewart, Stuntz

Adjunct Professors: Khachik†††††, Mazzola

†Distinguished Scholar-Teacher

††Distinguished University Professor

†††Millard Alexander Professor

††††Research Associate Professor

†††††Senior Research Scientist

[www.chem.umd.edu](http://www.chem.umd.edu)

[www.chem-umd.edu/undergrad/Frontpage.html](http://www.chem-umd.edu/undergrad/Frontpage.html)

### The Majors

The Department of Chemistry and Biochemistry offers programs leading to B.S. degrees in both chemistry and biochemistry. The programs are designed to be flexible and prepare students for graduate or professional school, careers in the biotechnology chemical and pharmaceutical industries, pre-college teaching of the chemical sciences, and research positions in government and academic laboratories.

**Note:** The lower-level courses offered by the Department of Chemistry and Biochemistry changed starting in the Fall 2005 semester. The lower-level requirements for chemistry and biochemistry majors are reflected in the requirements listed below. For details, contact the Undergraduate Office or visit the undergraduate section of the Department's website

Chemistry and biochemistry majors both begin their study with a common introductory four-semester sequence (CHEM 146/147, 237, 247, 276/277) along with their associated co-requisite laboratory courses (CHEM 147 and 277 are separate laboratory courses to be taken concurrently). Other courses common to both chemistry and biochemistry majors include UNIV 100, ENGL 101, and CHEM 395 (a one-credit seminar in professional issues), CHEM 425 (Instrumental Methods of Analysis), CHEM 481/483 (Physical Chemistry I and its laboratory).

Supporting courses (twenty credits) for both majors include introductory biology (BSCI 105), physics (PHYS 141/142), and mathematics (MATH 140/141). All majors and potential majors are encouraged to take MATH 241 (Calculus III) prior to beginning Physical Chemistry.

A student who enrolls in the chemistry or biochemistry program at any time following the first semester of study typically will enter the non-majors introductory sequence (CHEM 131/132, 231/232, 241/242 and 271/272; CHEM 132, 232, 242 and 272 are co-requisite laboratory courses) which fulfills the lower-level departmental requirements. Transfer students who wish to pursue chemistry or biochemistry majors will have their previous chemistry course work carefully evaluated for placement in the appropriate courses. Starting in 2007, transfer students with four or more semesters of general and organic chemistry credit must take, at a minimum, the CHEM 272 laboratory course to complete the introductory sequence.

## Requirements for Chemistry Majors

Departmental requirements for chemistry majors include 16 credits of lower-level courses, 20 credits of supporting courses, and 24 credits of upper-level courses. In addition to the specific courses listed above, chemistry majors take CHEM 401 (Inorganic Chemistry), CHEM 482/484 (Physical Chemistry II and its laboratory), and six (6) credits of upper-level electives selected from approved chemistry and biochemistry courses. In order to meet requirements for a degree approved by the American Chemical Society (ACS), students must complete a specific set of courses in addition to this curriculum. Information about ACS certification can be obtained in the undergraduate office.

All required chemistry and biochemistry courses must be passed with a minimum grade of C. Required supporting courses, including BSCI 105, must be passed with a 2.0 grade average.

## Requirements for Biochemistry Majors

Departmental requirements for biochemistry majors include 16 credits of lower-level courses, 20 credits of supporting courses, and a minimum of 25 credits of upper-level courses. In addition to the specific courses listed above, biochemistry majors take BCHM 485 (Biophysical Chemistry, in place of CHEM 482), twelve credits of biochemistry (BCHM 461, 462, 465 and BCHM 464 Biochemistry Laboratory)). Two additional biological science courses (six credits minimum) chosen from an approved list are also required. Specific information about course requirements can be obtained in the undergraduate office.

All required chemistry, biochemistry, and upper-level biological sciences courses must be passed with a minimum grade of C. Required supporting courses, including BSCI 105, must be passed with a 2.0 grade average.

## Advising

There is mandatory advising for all Chemical and Life Science majors each semester. Advising appointments can be made by contacting the undergraduate office, 2102 Chemistry Building, 301-405-1791.

## Financial Assistance

Two scholarships are available for majors: the Isidore and Annie Adler Scholarship of \$500 to an outstanding major with financial need and the Leidy Foundation Scholarships of \$600 to two outstanding junior majors. No application is necessary, as all majors are automatically reviewed by the Awards Committee.

## Honors and Awards

Students with a GPA of 3.0 or better who have completed two semesters of CHEM 399 (Introduction to Chemical Research) have an opportunity to sign up for CHEM 398 (Honors Research) in their senior year and be considered for departmental honors. After successful completion of a senior honors thesis and seminar, graduation "with honors" or "with high honors" in chemistry or biochemistry can be attained.

## Student Organizations

Alpha Chi Sigma Chemistry Fraternity is a professional fraternity which recruits men and women students from chemistry, biochemistry, and related science majors during each fall and spring semester. The fraternity holds weekly meetings and provides tutoring for students in lower-level chemistry courses. The office is in Room 2106A Chemistry Building. Dr. Lyle Isaacs (3341 Chemistry Building, 301-405-1884) is the faculty advisor.

The student affiliate program of the American Chemical Society (SA-ACS) is designed to introduce students in chemistry, biochemistry and related fields to a variety of professional activities. Student affiliates will gain skills and make contacts aimed at launching a successful career in science. Activities include networking and meeting with professionals, attending national meetings and participating in public outreach programs. Affiliates also receive subscriptions to Chemical & Engineering News, the undergraduate career *in Chemistry*, as well as gaining on-line access to announcements regarding job and intern opportunities. The student affiliate office is located in Room 2112A of the Chemistry Building. For more information contact the Faculty Advisor, Dr. Doug English (denglish@wam.umd.edu).

Course Codes: CHEM, BCHM

## CIVIL AND ENVIRONMENTAL ENGINEERING (ENCE)

### A. James Clark School of Engineering

1173 Engineering Classroom Building, 301-405-7768  
www.cee.umd.edu

Professor and Chair: Haghani

Professors: Aggour, Amde, Ayyub, Baecher, G. Chang, Davis, Goodings, Hao, Mahmassani, McCuen, Schonfeld, Skibniewski, Sternberg, Torrents, Vannoy

Research Professors: Galloway, Wright

Affiliate Professors: Gansler, Golden, Kalnay

Associate Professors: Austin, Brubaker, P. Chang, Goulias, Lovell, Moglen, Schwartz, Seagren

Senior Research Scientists: Link, Milner

Associate Research Engineer: Fu

Assistant Professors: Aydilek, Gabriel, Medina, Miller-Hooks

Professors Emeriti: Albrecht, Birkner, Colville, Donaldson, Ragan, Schelling, Witzak

## The Major

Civil and environmental engineering is a people-serving profession, concerned with the planning, design, construction and operation of large complex systems such as buildings and bridges, water purification and distribution systems, highways, rapid transit and rail systems, ports and harbors, airports, tunnels and underground construction, dams, power-generating systems, and structural components of aircraft and ships. Civil and environmental engineering also includes urban design and city planning, water and land pollution and treatment problems, and disposal of hazardous wastes and chemicals. The design and construction of these systems are only part of the many challenges and opportunities for civil and environmental engineers. Ongoing advances in computers, communications, and data management have provided new resources that are widely used by the professional civil and environmental engineer in providing safe, economical, and functional facilities to serve our society.

## Requirements for Major

The Department offers a program of study leading to an ABET-accredited Bachelor of Science in Civil Engineering (BSCE) degree. Each student specializes in one of three tracks: Infrastructure Engineering (Structural and Geotechnical), Environmental and Water Resources Engineering, or Transportation Systems and Project Management. A total of 122 credit hours (123 for the Environmental and Water Resources Track) are required for a BSCE degree with emphasis in basic science (mathematics, chemistry, and physics), engineering science (mechanics of materials, statics, and dynamics), basic civil and environmental engineering courses; required courses in the selected track; technical electives; and a senior capstone design course. The curriculum provides a sensible blend of required courses and electives, permitting students to pursue their interests without the risk of overspecialization.

## Department Mission Statement

The mission of the Department is threefold: (1) Provide a high quality, challenging education that encompasses breadth and depth; and prepare graduates to be proficient in both analysis and synthesis facets of civil engineering design; (2) Maintain a strong research program that is recognized for excellence in major areas of civil and environmental engineering; (3) Provide service to the University, the civil engineering profession, and the community at large.

The Department provides an educational program of basic and specialized engineering knowledge necessary for its graduates to be proficient in recognized specialties of civil engineering. This preparation provides graduates with the tools needed for successful practice in the period following graduation. In addition to general and technical education, the educational program stresses professional and ethical responsibilities, an awareness of societal issues, and the need for life-long learning.

The Department contributes to the advancement of knowledge through research on important engineering problems. The research results are communicated through recognized channels of knowledge dissemination.

The Department serves the needs of the community by emphasizing global and societal issues. The Department addresses these issues through University and professional channels and contributes to their solutions.

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### Program Educational Objectives

The Department – building upon the above mission – established three program educational objectives:

1. Prepare our graduates for competent professional practice within civil engineering related industries of Maryland and the mid-Atlantic region.
2. Create a cadre of graduates with the breadth of interests and skills to take on challenging new areas of engineering practice.
3. Instill in our graduates a recognition of the importance of continuing professional development.

### Program Outcomes

The Department has established twenty *program outcomes*, which include ABET's (a) through (k) criteria, plus four additional American Society of Civil Engineers (ASCE) outcomes. The outcomes are listed below, together with Department-specific interpretations, following ASCE.

1. An ability to apply knowledge of mathematics. A technical core of knowledge and breadth of coverage in mathematics, science, and civil engineering, including the fundamentals of several recognized major CE areas: mathematics through differential equations, probability and statistics.
2. An ability to apply knowledge of basic science. Mastery of coursework in: calculus-based physics, biology\*, chemistry, ecology\*, and geology/geomorphology.
3. An ability to apply knowledge of engineering principles. Mastery of coursework in: engineering economics, mechanics, material properties, systems, and geo-spatial representation.
4. An ability to use computers to solve engineering problems. Mastery of coursework in information technology.
5. An ability to identify, formulate, and solve engineering problems. The ability to assess situations in order to identify engineering problems, formulate alternatives, and recommend feasible solutions.
6. An ability to design & conduct experiments. In at least one of the major recognized CE areas, should be able to design and conduct field and laboratory studies, gather data, create numerical and other models, and then analyze and interpret the results (e.g., traffic, geotechnical, and water quality investigations).
7. An ability to analyze and interpret data. (See #6).
8. An ability to design a component, system or process to meet desired needs. Critical design methodology and process elements include problem definition, scope, analysis, risk assessment, creativity, synthesizing alternatives, iteration, codes, safety, security and constructability, sustainability, and multiple objectives and various perspectives. Other important design or design procurement elements are bidding versus qualifications-based selection; estimating engineering costs; interaction between planning, design and construction; owner-engineer relationships; and life-cycle assessment. Understanding large-scale systems is important, including the need to integrate information, organizations, people, processes, and technology. Design experiences should be integrated throughout the professional component of the curriculum.
9. An ability to use the techniques, skills, and tools of modern engineering. This includes the role and use of appropriate information technology, contemporary analysis and design methods, and applicable design codes and standards as practical problem-solving tools to complement knowledge of fundamental concepts. Also included is the ability to select the appropriate tools for solving different types and levels of problems.
10. An ability to write effectively. Effective communication includes listening, observing, reading, speaking, and writing and requires understanding of the fundamentals of interacting effectively with technical and non-technical or lay individuals and audiences in a variety of settings. Our graduates need to be versatile with mathematics, graphics, the worldwide web and other communication tools.
11. An ability to speak effectively. See #10.
12. An ability to function effectively as part of a team. Be able to: lead a design or other team as well as participate as a member of a team; demonstrate an understanding of team formation and evolution, personality profiles, team dynamics, collaboration among diverse disciplines, problem solving, and time management; and be able to foster and integrate diversity of perspectives, knowledge and experience.
13. An understanding of professional and ethical responsibility. Demonstrate an understanding of and a commitment to practice according to the seven Fundamental Canons of Ethics and the associated Guidelines to Practice Under the Fundamental Canons of Ethics.
14. A knowledge of contemporary issues in engineering. Should appreciate the relationship of engineering to critical contemporary issues such as multicultural globalization of engineering practice; raising the quality of life around the globe; the growing diversity of society; and the technical, environmental, societal, political, legal, aesthetic, economic, and financial implications of engineering projects.
15. An understanding of the impact of engineering solutions in a global and society context. Need to appreciate, from historical and contemporary perspectives, culture, human and organizational behavior, aesthetics and ecology and their impacts on society. Includes history and heritage of the CE profession.
16. An awareness of the need to continually upgrade one's technical knowledge base and skills. Life-long learning mechanisms available for personal and professional development include additional formal education, continuing education, professional practice experience, active involvement in professional societies, community service, coaching, mentoring, and other learning and growth activities. Personal and professional development can include developing understanding of and competence in goal setting, personal time management, communication, delegation, personality types, networking, leadership, the socio-political process, and effecting change. Professional development can, in addition to the preceding, include career management, increasing discipline knowledge, understanding business fundamentals, contributing to the profession, considering self-employment, achieving licensure and specialty certification, and additional graduate studies.
17. An ability to apply knowledge in a specialized area related to civil engineering. For a professional civil engineer, specialized technical coursework (or the equivalent) is necessary. Examples of specialized technical areas include environmental engineering, structural engineering, construction engineering and management, public works management, transportation engineering and water resources management. Civil engineering specializations in non-traditional, boundary, or emerging fields such as ecological engineering and nanotechnology are encouraged.
18. An understanding of the elements of project management, construction, and asset management. Efforts of the professional civil engineer often lead, in the context of projects, to construction of structures, facilities and systems that, in turn, must be operated and maintained. Project management essentials include project manager responsibilities, defining and meeting client requirements, risk assessment and management, stakeholder identification and involvement, contract negotiation, project work plans, scope and deliverables, budget and schedule preparation and monitoring, interaction among engineering and other disciplines, quality assurance and quality control, and dispute resolution processes. Important construction elements are owner-engineer-contractor relationships; project delivery systems (e.g., design-bid-build, design-build); estimating construction costs; bidding by contractors; labor and labor management issues; and construction processes, methods, systems, equipment, planning, scheduling, safety, cost analysis and cost control. Asset management seeks effective and efficient long-term ownership of capital facilities via systematic acquisition, operation, maintenance, preservation, replacement, and disposition. Goals include optimizing life-cycle performance, minimizing life-cycle costs, and achieving maximum stakeholder benefit. Tools and techniques include design innovations, new construction technologies, materials improvements, geo-mapping, database management, value assessment, performance models, web-based communication, and cost accounting. Including asset management recognizes that civil engineers, during their careers, are likely to be involved with some aspect of capital facilities management.

19. An understanding of business and public policy and administration fundamentals. The professional civil engineer typically functions within both the public and private sectors that requires at least an understanding of business, public policy, and public administration fundamentals. Important business fundamentals topics as typically applied in the private, government and non-profit sectors include legal forms of ownership, organizational structure and design, income statements, balance sheets, decision (engineering) economics, finance, marketing and sales, billable time, overhead, and profit. Essential public policy and administration fundamentals include the political process, public policy, laws and regulations, funding mechanisms, public education and involvement, government-business interaction, and the public service responsibility of professionals.

20. An understanding of the role of the leader and leadership principles and attitudes. Leading, in the private and public arena—which differs from and complements managing—requires broad motivation, direction, and communication knowledge and skills. Attitudes generally accepted as being conducive to leadership include commitment, confidence, curiosity, entrepreneurship, high expectations, honesty, integrity, judgment, persistence, positiveness, and sensitivity. Desirable behaviors of leaders, which can be taught and learned, include earning trust, trusting others, formulating and articulating vision, communication, rational thinking, openness, consistency, commitment to organizational values, and discretion with sensitive information.

\* Increased exposure to or emphasis on biological systems, ecology, sustainability, nanotechnology, and information technology is expected to occur in the 21st century.

|  | Semester  |           |
|--|-----------|-----------|
|  | Credit    | Hours     |
|  | I         | II        |
| <b>Freshman Year (All Civil &amp; Environmental Engineering)</b> |           |           |
| MATH 140 Calculus I  | 4         |           |
| MATH 141 Calculus II   |           | 4         |
| CHEM 135 General Chemistry for Engineers                         | 3         |           |
| ENES 100 Introduction to Engineering Design                      | 3         |           |
| ENES 102 Statics   |           | 3         |
| ENGL 101 Introduction to Writing                                 | 3         |           |
| PHYS 161 General Physics   |           | 3         |
| ENCE 100 Introduction to Civil & Environmental Engineering       | 1         |           |
| CORE Program Requirements  |           | 6         |
| <b>Total</b>   | <b>14</b> | <b>16</b> |

|   |           |           |
|---|-----------|-----------|
| <b>Sophomore Year (All Civil &amp; Environmental Engineering)</b> |           |           |
| MATH241 Calculus III  | 4         |           |
| MATH 246 Differential Equations for Scientists and Engineers      |           | 3         |
| PHYS 260, 261 General Physics II with Lab                         | 4         |           |
| ENES 220 Mechanics of Materials                                   | 3         |           |
| ENCE 200 Engineering Information Processing I                     | 3         |           |
| ENCE 201 Engineering Information Processing II                    |           | 3         |
| ENCE 215 Applied Engineering Science                              | 3         |           |
| ENCE 305 Fundamentals of Engineering Fluids                       |           | 3         |
| CORE Program Requirements   |           | 6         |
| <b>Total</b>  | <b>17</b> | <b>15</b> |

|   |           |           |
|---|-----------|-----------|
| <b>Junior Year</b>  |           |           |
| <b>Infrastructure Engineering Track</b>                                 | I         | II        |
| ENGL 393 Technical Writing  |           | 3         |
| ENES 221 Dynamics   | 3         |           |
| ENCE 300 Fundamentals of Engineering Materials                          | 3         |           |
| ENCE 301 Geo-Metrics and GIS in Civil Engineering                       | 3         |           |
| ENCE 302 Probability and Statistics for Civil & Environmental Engineers |           | 3         |
| ENCE 340 Fundamentals of Geotechnical Engineering                       |           | 3         |
| ENCE 353 Introduction to Structural Analysis                            | 3         |           |
| ENCE 320 Engineering Project Management                                 |           | 3         |
| ENCE Electives*   | 3         |           |
| CORE Program Requirements   |           | 3         |
| <b>Total</b>  | <b>15</b> | <b>15</b> |

|   |   |   |
|---|---|---|
| <b>Transportation Systems &amp; Engineering Management Track</b>        |   |   |
| ENGL 393 Technical Writing  |   | 3 |
| ENCE 300 Fundamentals of Engineering Materials                          | 3 |   |
| ENCE 301 Geo-Metrics and GIS in Civil Engineering                       | 3 |   |
| ENCE 302 Probability and Statistics for Civil & Environmental Engineers |   | 3 |
| ENCE 320 Engineering Project Management                                 | 3 |   |
| ENCE 360 Analysis of Civil Engineering Systems                          |   | 3 |
| ENCE 370 Introduction to Transportation Engineering & Planning          |   | 3 |

|                                     |           |           |
|-------------------------------------|-----------|-----------|
| ENCE 472 Transportation Engineering |           | 3         |
| ENCE Electives*                     | 3         |           |
| CORE Program Requirements           |           | 3         |
| <b>Total</b>                        | <b>15</b> | <b>15</b> |

|   |           |           |
|---|-----------|-----------|
| <b>Environmental &amp; Water Resources Engineering Track</b>            |           |           |
| ENGL 393 Technical Writing  |           | 3         |
| BSCI 105 Principles of Biology I  | 4         |           |
| ENCE 300 Fundamentals of Engineering Materials                          |           | 3         |
| ENCE 301 Geo-Metrics and GIS in Civil Engineering                       | 3         |           |
| ENCE 302 Probability and Statistics for Civil & Environmental Engineers | 3         |           |
| ENCE 310 Introduction to Environmental Engineering                      |           | 3         |
| ENCE 402 Simulation and Design of Experiments for Engineers             |           | 3         |
| ENCE 431 Hydrologic Engineering   |           | 3         |
| ENCE Electives*   | 3         |           |
| CORE Program Requirements   | 3         |           |
| <b>Total</b>  | <b>16</b> | <b>15</b> |

|  |           |           |
|--|-----------|-----------|
| <b>Senior Year</b>                                   |           |           |
| <b>Infrastructure Engineering Track</b>              |           |           |
| ENCE 444 Laboratory Characterization of Geomaterials |           | 3         |
| ENCE 453 Computer-Aided Structural Analysis          | 3         |           |
| ENCE 454 Design of Concrete Structures               | 3         |           |
| ENCE 441 Foundation Design                           | 3         |           |
| ENCE 466 Design of Civil Engineering Systems         |           | 3         |
| ENCE Electives *                                     | 3         | 6         |
| CORE Program Requirements                            | 3         | 3         |
| <b>Total</b>   | <b>15</b> | <b>15</b> |

|  |           |           |
|--|-----------|-----------|
| <b>Transportation Systems &amp; Engineering Management Track</b> |           |           |
| ENCE 402 Simulation and Design of Experiments for Engineers      |           | 3         |
| ENCE 422 Project Cost Accounting & Economics                     |           | 3         |
| ENCE 423 Project Planning, Scheduling & Control                  | 3         |           |
| ENCE 470 Highway Engineering                                     | 3         |           |
| ENCE 466 Design of Civil Engineering Systems                     |           | 3         |
| ENCE Electives*  | 6         | 3         |
| CORE Program Requirements  | 3         | 3         |
| <b>Total</b>   | <b>15</b> | <b>15</b> |

|  |           |           |
|--|-----------|-----------|
| <b>Environmental and Water Resources Engineering Track</b> |           |           |
| ENCE 411 Environmental Engineering Science                 | 3         |           |
| ENCE 422 Project Cost Accounting & Economics               |           | 3         |
| ENCE 412 Environmental Engineering Unit Operations         |           | 3         |
| ENCE 432 Ground Water Hydrology                            | 3         |           |
| ENCE 466 Design of Civil Engineering Systems               |           | 3         |
| ENCE Electives*  | 6         | 3         |
| CORE Program Requirements                                  | 3         | 3         |
| <b>Total</b>   | <b>15</b> | <b>15</b> |

Minimum Degree Requirements: 122 credits(123 for the Environmental and Water Resources Engineering Track) and the fulfillment of all departmental, school, and University requirements with a cumulative grade point average of at least 2.0. Additional semester credits will be involved to the extent that courses carrying more than three credits are selected.

\*ENCE electives are to be selected as follows:

Two electives: one from each of the two tracks in which the student is not specializing; each must be a 300 or 400 level class chosen from among approved courses from that track. The remaining electives: Any 300 or 400 level ENCE class not required for the student's chosen track; other senior level mathematics, science, and engineering courses, with the approval of the Department.

## Admission/Advising

See the entrance requirements for the A. James Clark School of Engineering in Chapter 6. Civil and environmental engineering students are advised by Dr. Kaye Brubaker, who assists in course selection and scheduling until the semester in which the student completes the basic requirements common to all tracks. At that point, students will be directed to another faculty member who serves as specialty advisor for their track. For advising, contact Dr. Brubaker, 301-405-1965.

## Fieldwork and Internship Opportunities

Several excellent co-op opportunities are available for Civil and Environmental Engineering students. See the A. James Clark School of Engineering entry in chapter 6 of this catalog for a full description of the Engineering co-op program, or contact Ms. Heidi Sauber, 301-405-3863.



## 100 Classics

### Financial Assistance

The Department of Civil and Environmental Engineering awards a number of academic scholarships. These awards are designated primarily for junior and senior students. A department committee evaluates applications each year. See the School of Engineering web site for information and application instructions.

### Honors and Awards

See A. James Clark School of Engineering Honors Program. The Department of Civil Engineering offers the following awards: 1) The Civil Engineering Outstanding Senior Award; 2) The ASCE Outstanding Senior Award; 3) The Woodward-Clyde Consultants Award; 4) The Bechtel Award; 5) The Chi Epsilon Outstanding Senior Award; 6) The Ben Dyer Award; 7) The ASCE Maryland Section Award; and 8) The Department Chairman's Award.

### Student Organizations

Student organizations include the American Society of Civil Engineers and Institute of Transportation Engineers student chapters, which are open to all civil and environmental engineering students. The Civil Engineering Honor Society, Chi Epsilon, elects members semi-annually. Information on membership and eligibility for these student organizations may be obtained from the president of each organization. See the Department web site for contact information.

Course Code: ENCE

## CLASSICS (CLAS)

### College of Arts and Humanities

2407 Marie Mount Hall, 301-405-2014

E-mail: hlee@deans.umd.edu

[www.classics.umd.edu](http://www.classics.umd.edu)

Professors: Hallett†, Lee

Associate Professors: Doherty, Rutledge, Staley, Stehle

†Distinguished Scholar-Teacher

### The Major

Classics is the study of the languages, literature, culture and thought of ancient Greece and Rome. Students at the University of Maryland may major in Classical Languages and Literatures with four options and may enroll in a variety of courses on the classical world. These options include Latin, Greek, Greek and Latin, and Classical Humanities.

### Requirements for Major

Requirements for the Classics major include the College of Arts and Humanities requirement of 45 upper-level credits completed.

The College foreign-language requirement will be automatically fulfilled in the process of taking language courses in the major.

#### Option A: Latin

Thirty credits of Latin at the 200-level or higher, at least 12 of which must be at the 400-level or higher, plus nine to twelve credits of supporting courses at any level in CLAS, GREK, or related fields such as HIST and ARTH.

#### Option B: Greek

Thirty credits of Greek at the 200-level or higher, at least 12 of which must be at the 400-level or higher, plus nine to twelve credits of supporting courses at any level in CLAS, LATN, or related fields such as HIST and ARTH.

#### Option C: Latin and Greek

Eighteen credits of either Latin or Greek and 12 hours of the other classical language, plus nine hours of supporting courses (for example, CLAS 170, HIST 110, and a 300- or 400-level course in Greek or Roman history). Students with no previous training in the second language may count introductory level courses as part of the 12-hour requirement.

#### Option D: Classics in Translation (Classical Humanities)

Eighteen credits in CLAS courses; 12 credits in Latin or Greek courses; and 12-14 credits in supporting courses (normally upper level courses in Art History, Archaeology, Architecture, Government, History, Linguistics, or Philosophy). **Note:** Students are encouraged to substitute 300- and 400-level courses in LATN and GREK for some of the 18 required credits in CLAS. 100 and 200-level courses in GREK may be included among the

supporting credits if the student's 12 language credits are taken in Latin, and 100 and 200-level courses in LATN may be included among the supporting credits if the student's 12 language credits are taken in GREK.

Students are encouraged to take as much language as possible, but should take language courses sequentially, i.e., 101, 102, 201. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit. The student should begin the sequence at the appropriate level.

### Advising

Departmental advising is mandatory for all majors every semester.

### Minors

#### Classical Mythology

This minor will introduce students to classical mythology, its uses within ancient Greek and Roman culture, and its subsequent influence on art and literature. The minor requires 15 credits:

Required courses:

|                                    |   |
|------------------------------------|---|
| CLAS 170 Greek and Roman Mythology | 3 |
| CLAS 470 Approaches to Greek Myth  | 3 |

In addition, the student must choose three courses from the following list, two of which must be at the 3 or 400 level:

|  |   |
|--|---|
| CLAS 270 Greek Literature in Translation               | 3 |
| CLAS 271 Roman Literature in Translation               | 3 |
| CLAS 320 Women in Classical Antiquity                  | 3 |
| CLAS 330 Ancient Greek Religion: Gods, Myths, Temples  | 3 |
| CLAS 340 Ancient Roman Religion: From Jupiter to Jesus | 3 |
| CLAS 370 Classical Myths in America                    | 3 |
| CLAS 374 Greek Tragedy in Translation                  | 3 |
| CLAS 419 The Classical Tradition                       | 3 |

Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

#### Latin

This minor will introduce students to the Latin language and enable them to read in Latin important works of Latin literature. For students with no prior experience of Latin, this minor would require 21 credits, consisting of the following courses:

|   |   |
|---|---|
| Latin 101 Elementary Latin I  | 4 |
| Latin 102 Elementary Latin II   | 4 |
| Latin 201 Intermediate Latin  | 4 |
| Latin 3XX A reading course in Plautus, Petronius, Ovid or Horace and Catullus | 3 |
| Latin 3XX A reading course in Plautus, Petronius, Ovid or Horace and Catullus | 3 |
| Latin 4XX A reading course in a major Latin author                            | 3 |

Students who enter with advanced standing in Latin can complete the minor by taking a total of five courses in Latin at the 200 level and beyond.

Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

#### Greek

This minor will introduce students to ancient Greek and enable them to read in Greek important works of Greek literature. This minor would require 21 credits, consisting of the following courses:

|  |   |
|--|---|
| Greek 101 Elementary Ancient Greek I                         | 4 |
| Greek 102 Elementary Ancient Greek II                        | 4 |
| Greek 201 Intermediate Ancient Greek                         | 4 |
| Greek 301 Scenes from Athenian Life                          | 3 |
| Greek 4XX Either Greek Philosophers, Greek Tragedy, or Homer | 3 |

A Classics course at the 300 or 400 level such as CLAS 374 (Greek Tragedy) or CLAS 330 (Greek Religion)

Students interested in pursuing this minor should consult with the Undergraduate Advisor in the Department of Classics.

Course Codes: CLAS, GREK, LATN

## COMMUNICATION (COMM) (FORMERLY SPEECH COMMUNICATION)

### College of Arts and Humanities

2130 Skinner Building, 301-405-8979 (main office)

405-6519 (undergraduate office)

[www.comm.umd.edu](http://www.comm.umd.edu)

Professor and Chair: Fink<sup>†</sup>

Professors Emeriti: J. Grunig, L. Grunig

Professors: E. Toth, Wolvin

Associate Professors: Aldoory, Cai, Gaines, Klumpp, S. Parry-Giles, T. Parry-Giles, Tonn

Assistant Professors: Bowen, Reimer, Ströh, Turner

Director of Undergraduate Studies and Senior Lecturer: Waks

Outreach Coordinator: Gowin

Coordinator of Undergraduate Program at Shady Grove: Harper

Research Professor: Kendall

Visiting Associate Professors: Finn, Nicotera

Visiting Assistant Professor: Banas

Lecturers: Cronin, Drake, Liu, Rockland, Tenney, R. Toth, Yun

Affiliate Professors: Fahnestock (ENGL), Gurevitch (JOUR), Kruglanski (PSYC), Rosenfelt (WMST)

Affiliate Associate Professors: Gefland (PSYC), McDaniel (KNES)

Research Associate: Dinauer, Garst, Hubbard, Meffert

<sup>†</sup>Distinguished Scholar-Teacher

Communication takes as its subject matter the history, processes, and effects of human communication through speech and its extensions. The departmental curriculum is designed to provide a liberal education in the arts and sciences of human communication as well as preparation for career opportunities in business, government, education, and related fields. Within the curriculum, students may pursue academic programs that emphasize many disciplinary areas, including intercultural communication, political communication, public relations, negotiation and conflict management, cognition and persuasion, rhetorical theory, history of rhetoric, and criticism of public discourse. Departmental advising is mandatory for new majors, second semester sophomores, and seniors.

### Admission to the Major First-time Freshman

All first-time freshmen who designate communication as a major prior to the end of the final exam period of their first semester will be admitted directly into the program. They must sign a Memorandum of Understanding that states that they understand that by the semester in which they attain 45 University of Maryland credits (excluding AP), they must meet the following Gateway requirements.

- Complete 50% of the CORE requirements, including Fundamental Studies requirements in Mathematics and English.
- Complete one of the following courses with a grade of C or better: BMGT230, CCJS200, EDMS451, PSYC200, SOCY201, or equivalent.
- Complete COMM 107, COMM 200, or COMM 230 with a grade of C or better
- Complete COMM 250 with a grade of C or better and
- A GPA of 2.0 or better

Students may repeat only one of the Gateway courses and that may be repeated only once in their attempt to meet the requirements and students who fail to meet them by the semester in which they attain 45 credits will be dismissed from the program and cannot reapply.

### Transfer Students

Internal and external transfer students who meet the Gateway requirements specified above and have a cumulative GPA of 2.7 in all college level coursework may apply to the program up until and including the semester in which they reach 60 credits. (Students are encouraged to apply at any time prior to reaching 60 credits as long as the requirements have been completed.)

For those students who meet the Gateway requirements and who apply *after the semester in which they reach 60 credits*, admission is competitive and on a space-available basis.

Newly admitted transfer students who have more than 60 credits have only their first semester at the University of Maryland to complete the Gateway requirements.

### Appeals

All students may appeal admission decisions. Students directly admitted as freshmen, who are dismissed because of failure to meet Gateways or be in good academic standing at 45 credits, may appeal directly to the Undergraduate Director in the Department of Communication. All other students who are denied admission may appeal to the Office of Admission of the University.

### The Major

Requirements for the Communication major include a minimum of 45 upper-level credits and the foreign language requirement of the College of Arts and Humanities. No course with a grade less than C may be used to satisfy major requirements.

For coursework in Intercultural Communication, Mediated Communication, Negotiation and Conflict Management, Persuasion and Attitude Change, Political Communication, Public Relations, and Rhetoric and Public Discourse, see the Department of Communication. For academic programs in Print News, Broadcast News, Magazine and On-Line Journalism, and copy-editing see the College of Journalism.

### Requirements for Major

The course of study for a Communication major must satisfy all of the following requirements.

- One course from the following list: COMM 107, 200, or 230.
- COMM 250, 400, and 401.
- Completion of one of the following tracks: Social Influence, Communication Studies, Public Relations, or Rhetoric and Political Culture.
  - Social Influence: COMM 402**  
Five courses from the following: COMM 420, 424, 425, 426, 435, 470, 475, 477, 482. 6 semester hours in COMM at least three of which are at the 300-400 level. One course from the following (Statistical Analysis): PSYC 200, SOCY 201, BMGT 230, EDMS 451 or an equivalent course. One course from the following (Structural Analysis of Language): LING 200, HESP 120, ANTH 380 or an equivalent course. 9 semester hours in courses related to Social Influence in one department other than COMM.
  - Communication Studies: COMM 402**  
One course from the following: COMM 420, 424, 425, 426, 435, 470, 475, 477, 482. One course from the following: COMM 330, 360, 450, 451, 453, 455, 460, 461, 469, 471, 476. 15 semester hours in COMM courses at least 12 of which must be at the 300-400 level. One course from the following (Statistical Analysis): PSYC 200, SOCY 201, BMGT 230, EDMS 451 or an equivalent course. One course from the following (Structural Analysis of Language): LING 200, HESP 120, ANTH 380 or an equivalent course. 9 semester hours in courses related to Communication Studies in one department other than COMM.
  - Public Relations: JOUR 231 and JOUR 232; COMM 350, 351, 352, 386 (only 3 credits apply to major), and 483.** 3 semester hours in COMM at the 300-400 level. One course from the following (Statistical Analysis): PSYC 200, SOCY 201, BMGT 230, EDMS 451 or an equivalent course. One course from the following (Economics): ECON 200 or 201.9 semester hours in courses related to Public Relations in one department other than COMM or JOUR.
  - Rhetoric and Political Culture: COMM 450; Five courses from the following: COMM 330, 360, 451, 453, 455, 460, 461, 469, 471, 476.** 6 semester hours in COMM at least three of which must be at the 300-400 level. One course from the following (Critical Analysis of Discourse): AMST 432, CMLT 488, ENGL 453, JWST 263, PHIL 233. One course from the following (Structural Analysis of Language): LING 200, HESP 120, ANTH 380 or an equivalent course. 9 semester hours in course related to Rhetoric and Political Culture in one department other than COMM.

Because the department's curriculum changes over time, the department's Undergraduate Director may approve other appropriate Communication courses to meet the requirements for each track.

## 102 Comparative Literature Program

Courses required for the Communication major but taken outside COMM may be used to satisfy CORE requirements.

**Note:** COMM386, only 3 credits apply to major.

Communication offers special opportunities for majors. Superior students may participate in an Honors Program; contact the Honors Director. The department sponsors a chapter of Lambda Pi Eta National Honor Society. An internship program is also available to students doing work related to the major; contact the outreach coordinator.

Course Code: COMM

## COMPARATIVE LITERATURE PROGRAM (CMLT)

**College of Arts and Humanities**  
2107 Susquehanna Hall, 405-2853

### Core Faculty

Acting Director: Caramello (English)  
Professors: Collins\* (English), Fuegi, Harrison\* (Spanish and Portuguese)  
Associate Professor: Wang\* (English)  
Instructor: Robinson  
\*Joint appointment with unit indicated  
†Distinguished Scholar-Teacher

### Affiliate Faculty

Professors: Alford, Auchard, Barry, Bolles, Caramello, Caughey, Chambers, Cross, Cypess, Donawerth, Fahnestock, Flieger, Grossman, Hallett, Igel, Kauffman, Kelly, Kuo, Leinwand, Leonardi, Norman, M. Smith, Pearson, Robertson  
Associate Professors: Bami, J. Brown, Cate, Cohen, Doherty, Falvo, Kerkham, King, Mintz, Peres, Ray, Richardson, Strauch, Withers, Zilfi

Course Code: CMLT

## COMPUTER ENGINEERING (ENCP)

**A. James Clark School of Engineering**  
**Department of Electrical and Computer Engineering**  
2429 A.V. Williams Building, 301-405-3685  
E-mail: [eeceadv@deans.umd.edu](mailto:eeceadv@deans.umd.edu)  
[www.ece.umd.edu](http://www.ece.umd.edu)

Chair: O'Shea

Associate Chairs: Blankenship (External Relations), Franklin (Graduate Studies)

Professors: Abed, Agrawal, Antonsen, Baras, Barbe, Barg, Blankenship, Chellappa†, Dagenais, Davis†, DeClaris, Destler†, Ephremides, Farvardin, Gligor, Goldbar, Goldsman, Granatstein, Hendler, Ho, Iliadis, JaJa, Krishnaprasad, Lawson, Levine, Liu, Makowski, Marcust†, Mayergoyz†, Melngailis, Milchberg†, Nakajima, Narayan, Newcomb, Orloff, Oruc, O'Shea, Ott††, Peckerar, Rabin, Shamma, Shayman, Tits, Vishkin, Yang, Zaki  
Associate Professors: Bhattacharyya, Espy-Wilson, Franklin, Ghodssi, Gomez, Jacob, Hollingsworth, Horiuchi, Papamarcou, Silio, Tretter, Yeung  
Assistant Professors: Abshire, Barua, Bhattacharjee, Hicks, Katz, Keleher, La, Martins, Murphy, Petrov, Qu, Simon, Srivastava, Ulukus, Wu  
Emeriti: Davisson, Emad, Harger, Lee, Ligomenides, Lin, Pugsley, Reiser, Rhee, Striffler, Taylor, Wagner

### The Major

The computer engineering major combines the strengths of both the Department of Electrical and Computer Engineering and the Department of Computer Science to prepare students for careers in the computer industry. The program encompasses the study of hardware, software, and systems questions that arise in the design, development, and application of computers and embedded systems. Specifically, computer engineering students will have a knowledge of hardware systems (electrical networks, electronics, and VLSI); a knowledge of software systems (algorithms, data structures, and operating systems); and a knowledge of how these two domains interact (digital logic, signal and system theory, computer architectural and performance analysis). Computer Engineering students will learn about everything that goes into digital and computing systems, from solid state physics to CMOS VLSI design, to computer architecture to programming, and from operating systems to compiler and language theory.

### Educational Objectives

The educational objectives are broadly stated goals agreed upon by a consensus of the faculty pertaining to accomplishments or level of achievement desired of our students 3-5 years after graduation. These fall under the following four headings:

1. *Technical Knowledge:* Graduate engineers trained in the fundamentals of computer engineering and relevant specialties so they are prepared to succeed in graduate school or be productive engineers in government or industry.
2. *Laboratory, Design, and Research:* Graduate engineers who can design and perform experimental projects to solve diverse problems, with special emphasis on exploiting diverse technical knowledge and skills so they can engage in design work or research.
3. *Preparation for Further Study:* Graduate engineers who have the educational foundations and skills necessary to engage in lifelong learning in every sphere of their life.
4. *Professionalism:* Graduate engineers who have the professional skills they need to succeed in their chosen profession and are prepared to fulfill their professional responsibilities as engineers, which include their ethical obligations to society, employers, employees, and fellow engineers.

### Educational Opportunities

The program offers many educational opportunities. Most of these are designed to impart knowledge and skills required of all our students so that by the time of graduation they are prepared to achieve Educational Objectives. Other opportunities are optional and offered for interested and qualified students. The educational opportunities are:

1. *Broad Foundation:* Understanding of and ability to apply relevant mathematical, scientific, and basic engineering knowledge.
2. *Disciplinary Foundation:* Understanding of and ability to apply core computer engineering technical knowledge.
3. *Specialization:* Understanding of and ability to apply the skills and concepts within one or more of the specializations within computer engineering.
4. *Laboratory:* Understanding of and ability to employ standard experimental techniques to generate and analyze data as well as use state-of-the-art software and instrumentation to solve computer engineering problems.
5. *Design:* Theoretical understanding of and ability to engage in the creative design process through the integration and application of diverse technical knowledge and expertise to meet customer needs and address social issues.
6. *Research:* Ability to formulate and answer empirical and theoretical questions through participation in undergraduate research projects for interested and qualified students.
7. *Leadership:* Awareness of the need for engineering leaders both within the profession and the larger community, as well as some preparation to assume those leadership roles.
8. *Communication Skills:* Ability to communicate effectively both through oral presentations and the written word.
9. *Interpersonal Skills:* Ability to interact professionally with others in the workplace, to engage effectively in teamwork, and to function productively on multidisciplinary group projects.
10. *Engineering Ethics:* Understanding of the engineer's responsibilities to employers, society, and their fellow engineers as well as an ability to recognize potential and actual ethical problems, analyze critically those situations, and formulate sound ethical decisions.
11. *Engineering & Society:* Understanding of the symbiotic relationship between engineering and society – specifically, how engineering artifacts are shaped by and incorporate human values as well as the ways in which engineering solutions impact society – and the larger social obligations this entails for engineers.
12. *Life-long Learning:* Skills necessary to engage in life-long learning and an understanding of the need to continually exploit those skills in refining and updating one's knowledge base.

### Requirements for Major

As in all engineering degrees, the student starts out with a core curriculum in mathematics and basic science. Subsequent years of study involve courses covering a balanced mixture of hardware, software, hardware-software trade-offs, and basic modeling techniques used to represent the computing process. Courses covering algorithms, data structures, digital systems, computer organization and architecture, software and hardware design and testing, operating systems, and programming languages will be included. Elective courses must include electrical engineering and computer science courses and technical courses outside the departments. **Students must earn a grade of 'C' or higher in all engineering,**

**mathematics, and science courses as well as the prerequisites for these courses.** A sample program is shown below.

|  | Semester<br>Credit Hours |           |
|--|--------------------------|-----------|
|  | I                        | II        |
| <b>Freshman Year</b>                         |                          |           |
| CORE General Education**                     | 3                        | 3         |
| CHEM 135 General Chemistry for Engineers     | 3                        |           |
| PHYS 161 General Physics                     |                          | 3         |
| MATH 140, 141 Calculus I, II                 | 4                        | 4         |
| CMSC 132 Object Oriented Programming II      |                          | 4         |
| ENES 100 Intro. To Engineering Design        | 3                        |           |
| <b>Total Credits</b>                         | <b>13</b>                | <b>14</b> |
| <b>Sophomore Year</b>                        |                          |           |
| CORE General Education**                     |                          | 3         |
| MATH 246 Differential Equations              |                          | 3         |
| CMSC 212 Computer Science II                 | 4                        |           |
| CMSC 250 Discrete Structure                  | 4                        |           |
| CMSC 351 Algorithms                          |                          | 3         |
| PHYS 260, 261 General Physics II with Lab    | 4                        |           |
| ENEE 241 Numerical Techniques in Engineering |                          | 3         |
| ENEE 204 Basic Circuit Theory                |                          | 3         |
| ENEE 206 Digital Circuits                    |                          | 2         |
| ENEE 244 Digital Logic Design                | 3                        |           |
| <b>Total Credits</b>                         | <b>15</b>                | <b>17</b> |
| <b>Junior Year</b>                           |                          |           |
| CORE General Education**                     | 3                        | 3         |
| CMSC 330 Organization of Prog. Languages     | 3                        |           |
| CMSC 412 Operating Systems                   |                          | 4         |
| ENEE 303 Analog and Digital Electronics      | 3                        |           |
| ENEE 307 Electronics Circuits Design Lab     | 2                        |           |
| ENEE 322 Signal and System Theory            | 3                        |           |
| ENEE 324 Engineering Probability             |                          | 3         |
| ENEE 350 Computer Organization               | 3                        |           |
| ENEE 446 Computer Design                     |                          | 3         |
| <b>Total Credits</b>                         | <b>17</b>                | <b>13</b> |
| <b>Senior Year</b>                           |                          |           |
| CORE General Education**                     | 3                        | 3         |
| Computer Engineering Technical Electives     | 12                       | 10        |
| ENGL 393 Technical Writing                   |                          | 3         |
| <b>Total Credits</b>                         | <b>15</b>                | <b>16</b> |

\* Students may need to take CMSC 131, Object Oriented Programming I, or the computer science exemption exam before taking CMSC 132.

See the GENERAL EDUCATION REQUIREMENTS (CORE) for details about CORE program requirements.

\*\* **Note:** This sample schedule assumes at least one of the CORE Distributive Studies classes also satisfies the CORE Cultural Diversity requirement.

## Computer Engineering Majors

### Technical Elective Requirements

Effective Spring 2001, all BSCP graduates must distribute their 24 credits of technical electives among the following course categories:

- Category A. Mathematics and Basic Science Electives: minimum of 6 credits
- Category B. Computer Science Theory and Applications: minimum of 3 credits
- Category C. Electrical Engineering Theory and Applications: minimum of 3 credits
- Category D. Advanced Laboratory: minimum of 2 credits
- Category E. Capstone Design: minimum of 3 credits
- Category F. Engineering (not Electrical or Computer): 3 credits

Please read carefully, and make a note of the following special cases and other items:

- Two credits of ENEE 499, Senior Projects in Electrical and Computer Engineering, may be used to satisfy the Advanced Laboratory requirement subject to approval by the faculty supervisor and the Associate Chair. The maximum number of ENEE 499 credits that may be applied towards EE technical elective requirements is five.
- Additional Capstone Design courses can be used as substitutes for

the required Electrical Engineering Theory and Applications course; and/or the required Advanced Laboratory course, provided one of the following is completed: ENEE 408A, 408B, 408C, or 408F.

- Completion of ENEE 408A and ENEE 459A satisfies both the Capstone Design and Advanced Laboratory requirements.
- If you have any questions on how these requirements affect your current selection of technical electives, please contact an advisor.

## Admission

Admission requirements are the same as those of other departments in the School of Engineering. (See A. James Clark School of Engineering section on Entrance Requirements.)

## Advising

In addition to the Associate Chair and the Director and Associate Director of Undergraduate Studies, faculty in Computer Engineering function as undergraduate advisors. Departmental approval is required for registration in all upper-division courses in the major. The department's Undergraduate Office (2429 A.V. Williams Building, 301-405-3685) is the contact point for undergraduate advising questions.

## Cooperative Education Program

Participation in the Cooperative Education Program is encouraged. See A. James Clark School of Engineering entry for details.

## Departmental Honors

The Electrical and Computer Engineering Honors Program is intended to provide a more challenging and rewarding undergraduate experience for students pursuing the baccalaureate in Electrical or Computer Engineering. The program requires students to complete honors versions of four junior level electrical engineering courses and an honors project during the senior year. Students completing all program requirements with a 'B' average (3.0 on a 4.0 scale) and a cumulative GPA of 3.0 for all undergraduate work will have their participation noted on their B.S. diploma.

## Financial Assistance

Several corporate scholarships are administered through the Department. Information and scholarship applications are available from either the Department of Electrical and Computer Engineering Undergraduate Office, 2429 A.V. Williams Building, 301-405-3685, or the Clark School of Engineering Student Affairs Office, 1124 Engineering Classroom Building, 301-405-3855.

## Job Opportunities

Computer Engineers have wide ranging employment opportunities in both industry and government. Some of the specific jobs that students of computer engineering might acquire are: computer designer, application specialist, embedded system designer, interfacing and telecommunication designer, data logging and control, industrial systems design, hardware design, biomedical device design, real-time software design and development, instrumentation analysis and control, computer-integrated manufacturing.

## Research Labs

The Department of Electrical and Computer Engineering is affiliated with more than 40 specialized laboratories, supporting activities including: speech and image processing, high performance systems, mobile computing and multimedia, communication networks, robotics, control systems, neural systems, systems integration, VLSI design and testing, experimental software engineering, semiconductor materials and devices, photonics, fiber optics, ion beam lithography, real-time systems, human-computer interaction, and virtual reality.

## Student Organizations

There is an active Student Chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and membership applications are available in the Electrical and Computer Engineering undergraduate lounge, 0107 Glenn L. Martin Hall. Equally active is the chapter of Eta Kappa Nu, the nationwide Electrical Engineering honorary society. Information on eligibility can be obtained in the HKN lounge, 1154 Engineering Laboratory Building.

Course Codes: ENEE, CMSC

### COMPUTER SCIENCE (CMSC)

#### College of Computer, Mathematical and Physical Sciences

1119 A.V. Williams Building, 301-405-2672

E-mail: [ugrad@cs.umd.edu](mailto:ugrad@cs.umd.edu)

[www.cs.umd.edu](http://www.cs.umd.edu)

Professor and Chair: Davis

Professors: Agrawala, Aloimonos, Basili, Cleaveland, Dorr, Elman, Gasarch, Hendler, Khuller, Mount, Nau, O'Leary, Perlis, Pugh, Reggia, Roussopoulos, Salzberg, Samet, Shankar, Shneiderman, Stewart, Subrahmanian, Zelkowitz

Associate Professors: Bederson, Hollingsworth, Jacobs, Keleher, Kruskal, Porter, Putilo, Srinivasan, Tseng, Varshney

Assistant Professors: Arbaugh, Bhattacharjee, Chawathe, Deshpande, Duriswami, Foster, Getoor, Guimbretiere, Hicks, Katz, Memon, Spring, Sussman

Instructors: Golub, Plane

Lecturers: Emad, Herman, Hugue, Padua-Perez

Professors Emeriti: Chu, Kanal, Miller, Minker

#### The Major

Computer science is the study of computers and computational systems: their theory, design, development, and application. Principal areas within computer science include artificial intelligence, computer systems, database systems, human factors, numerical analysis, programming languages, software engineering, and theory of computing. A computer scientist is concerned with problem solving. Problems range from abstract determinations of what problems can be solved with computers and the complexity of the algorithms that solve them to practical matters (design of computer systems which are easy for people to use). Computer scientists build computational models of systems including physical phenomena (weather forecasting), human behavior (expert systems, robotics), and computer systems themselves (performance evaluation). Such models often require extensive numeric or symbolic computation.

The Computer Science Department also offers jointly with the Department of Electrical and Computer Engineering a program in computer engineering. For details see the Computer Engineering listing.

#### Requirements for Computer Science Major

The course of study for a Computer Science major must include all of the following requirements:

1. A grade of C or better in each of the following courses:
  - a. CMSC 131 or a score of 5 on A version of the JAVA Advanced Placement exam or a score of 4 or 5 on the AB version of the JAVA Advanced Placement exam or an acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.
  - b. CMSC 132 or acceptable score on the Java Advanced Placement examination or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.
  - c. CMSC 212 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.
  - d. CMSC 250 or acceptable score on the appropriate Department exemption examination, which is to be taken at the time of entry into the program.
  - e. At least 27 credit hours at the 300-400 levels. These must include CMSC 311, CMSC 330, CMSC 351, and at least 15 credit hours from the following CMSC courses with no more than two courses from a single category:
    - Computer Systems: Up to two of 411, 412, 414, 417
    - Information Processing: 420, one of 421 or 424 or 426 or 427;
    - Software Engineering/Programming Languages: Up to two of 430, 433, 434, 435;
    - Algorithms and Computation Theory: 451, one of 452 or 456;
    - Numerical Analysis: One of 460 or 466.

**Note:** Courses in Numerical Analysis require MATH 240 and 241 as additional prerequisites. Students without either of these prerequisites must choose their 15 credit hours from the remaining courses in the other four areas.

2. MATH 140 and 141. A STAT course which has MATH 141 (or a more advanced mathematics course) as a prerequisite, and one other MATH, STAT, or AMSC course which has MATH 141 (or a more advanced mathematics course) as a prerequisite. A grade of C or better must be earned in each of the courses. No course that is cross-listed as CMSC may be counted in this requirement.
3. A minimum of 12 additional credit hours of 300-400 level courses in one discipline outside of computer science with an average grade of C or better. No course that is cross-listed as CMSC may be counted in this requirement. **Note:** The following general guidelines should be observed when selecting courses for this upper level supporting sequence:
  - a. Courses must have all the same four-letter acronym
  - b. Each course should be a minimum of 3 credits.
  - c. Only 1 special topics or independent study course (such as courses numbered 498 or 499) may be used.

Any variations must be approved by the Undergraduate Program Director. No course used to fulfill another requirement (other than CORE Advanced Studies) can be counted in this requirement.

#### Advising

Computer science majors may obtain advising at room 1119 A.V. Williams Building. Interested students should call 301-405-2672 to receive further information about the program. Additional information can be found at [www.cs.umd.edu/Ugrad/Students](http://www.cs.umd.edu/Ugrad/Students) who have been away more than two years may find that due to curriculum changes, the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Department Advisor to make appropriate plans.

#### Financial Assistance

Students may find employment as tutors, as undergraduate teaching assistants, or as members of the department's laboratory staff. Professors may also have funds to hire undergraduates to assist in research. Many students also participate in internship or cooperative education programs, working in the computer industry for a semester during their junior or senior years.

#### Honors

A departmental honors program provides an opportunity for outstanding undergraduates to take graduate-level courses or to begin scholarly research in independent study with a faculty member. Students are accepted into the program after their sophomore year based on their academic performance. Additionally, the department has a chapter of Upsilon Pi Epsilon which is an international honor society to recognize excellence in computer science education.

#### Minor

The purpose of the minor in Computer Science is not only to give students a strong foundation in and understanding of algorithmic reasoning, problem solving methods involving computers and computation, and a solid base to help students adapt to future changes in technology, but to complement and enhance any student's major program of study. The computer science minor may be earned by students not majoring in computer science and computer engineering. A grade of C or better must be earned in all courses required for the minor. See <http://www.cs.umd.edu/Ugrad/current/MinorReqs.shtml> for detailed information. The award of a Minor will be noted on the student's transcript at the time of graduation.

#### Student Organizations

Computer-related extracurricular activities are arranged by our student chapter of the ACM, a professional group for computer sciences, and by the Association of Women in Computing. Meetings include technical lectures and career information.

Course Code: CMSC

## COUNSELING AND PERSONNEL SERVICES (EDCP)

### College of Education

3214 Benjamin Building, 301-405-2858

[www.education.umd.edu/EDCP](http://www.education.umd.edu/EDCP)

Professor and Chair: Kivlighan

Professors: Birk (Emeritus), Byrne (Emeritus), Fassinger, Hershenson (Emeritus), Lent, Magoon (Emeritus), Marx (Emeritus), Power (Emeritus), Pumroy (Emeritus), Rosenfield, Schlossberg (Emeritus), Hoffman, Sedlacek (Affiliate)

Associate Professors: Boyd, Clement (Affiliate), Fabian, Fassinger, Greenberg (Emeritus), Holcomb-McCoy, Jacoby (Affiliate), Jones, Komives, McEwen, Strein, Teglas, Westbrook (Affiliate)

Assistant Professors: Adams-Gaston (Affiliate), Amado, Bagwell (Affiliate), Evans (Affiliate), Fallon (Affiliate), Flannery (Affiliate), Freeman (Affiliate), Gast (Affiliate), Kandell (Affiliate), Kiely (Affiliate), Lucas, Mielke (Affiliate), Osteen (Affiliate), Phillips, Schmidt (Affiliate), Stewart (Affiliate), Stimpson (Affiliate), Thomas (Affiliate), Zacker (Affiliate)

The Department of Counseling and Personnel Services offers programs of preparation at the master's degree, advanced graduate specialist, and doctoral degree levels for counselors in elementary and secondary schools, rehabilitation agencies, business and industry, and college and university counseling centers. Additional graduate programs of preparation are provided for college student personnel administrators and school psychologists. The department also offers a joint doctoral program with the Department of Psychology in counseling psychology.

While the department does not have an undergraduate major, it does offer a number of courses which are open to undergraduates and are suggested for students considering graduate work in counseling or other human service fields. Specific courses in peer counseling, leadership, and diversity are provided.

Course Code: EDCP

## CRIMINOLOGY AND CRIMINAL JUSTICE (CCJS)

### College of Behavioral and Social Sciences

2220 LeFrak Hall, 301-405-4699

Chair: Simpson

Professors: Gottfredson, LaFree, Laub\*, MacKenzie, Paternoster\*, Reuter (Public Policy)\*\*, Weisburd, Wellford

Associate Professors: Bushway, Wish

Assistant Professors: Dugan, Johnson, Kirk, McGloin, Petras

Director of Undergraduate Programs: Brooks

Lecturers: Bonnar, Canter, Carr, Cosper, Fisher, Gaston, Lehman, Malm, Mauriello, Pecoraro, Roberts, Salem, White, Zumbun

\*Distinguished Scholar-Teacher.

\*\*Joint Appointment with unit indicated.

The purpose of the Department of Criminology and Criminal Justice is to promote study and teaching concerning the problems of crime, delinquency, law and social control. The department comprises as its component parts:

1. The Criminology and Criminal Justice Program, leading to a Bachelor of Arts degree
2. The Graduate Program, offering M.A. and Ph.D. degrees in Criminology and Criminal Justice
3. The Graduate Program, offering a Professional M.A. in Criminal Justice

### The Criminology and Criminal Justice Major

Changes in requirements are under review. Students should consult the department for updated information.

The major in criminology and criminal justice comprises 30 hours of coursework in Criminology and Criminal Justice. Eighteen (18) hours of supporting sequence selected from a list of social and behavioral science courses (list is available in the CCJS advising office and on the department website) are required. No grade lower than a C- may be used toward the major. An average of C is required in the supporting sequence. Nine (9) hours of the supporting sequence must be at the 300/400 level. In addition, Math 111 and CCJS 200 (or an approved course in social statistics) must be completed with a grade of "C" or better. A "C" or better is required in Math 111 as a prerequisite to CCJS 200.

### Major Requirements

|  | Semester<br>Credit Hours |
|--|--------------------------|
| CCJS 100: Introduction to Criminal Justice                     | 3                        |
| CCJS 105: Criminology  | 3                        |
| CCJS 230: Criminal Law in Action                               | 3                        |
| CCJS 300: Criminological and Criminal Justice Research Methods | 3                        |
| CCJS 340: Concepts of Law Enforcement Administration           | 3                        |
| CCJS 350: Juvenile Delinquency                                 | 3                        |
| CCJS 451, 452, or 454  | 3                        |
| CCJS Electives (3)   | 9                        |
| <b>Total</b>   | <b>30</b>                |

### Supporting Sequence

|   | Credit Hours |
|---|--------------|
| 18 hours (9 hours at 300/400 level)                                       | 18           |
| MATH 111 or higher (MATH 220, MATH140, STAT 100, but not MATH 113 or 115) | 3            |
| Required for all new CCJS majors declared 4/1/05 or after                 |              |
| Social Science Statistics   | 3            |
| <b>Total for Major and Supporting</b>                                     | <b>54</b>    |

Electives for CCJS Majors (most courses are 3 credits):

CCJS 234, CCJS 320, CCJS 330, CCJS 331, CCJS 352, CCJS 357, CCJS 359, CCJS 360, CCJS 370, CCJS 386, CCJS 388H, CCJS 389A, CCJS 398, CCJS 399, CCJS 400, CCJS 432, CCJS 444, CCJS 450, CCJS 451, CCJS 452, CCJS 453, CCJS 454, CCJS 455, CCJS 456, CCJS 457, CCJS 461, CCJS 462, and CCJS 498.

**Note: Criminal Justice (CJUS) majors and Criminology (CRIM) majors, which existed prior to 1992, have requirements different from the ones outlined here for Criminology and Criminal Justice (CCJS) majors. CJUS and CRIM majors are strongly urged to speak to a CCJS academic advisor regarding their requirements.**

## Internships

Internships are available through CCJS 398 and CCJS 359 in a variety of federal, state, local, and private agencies. A GPA of 2.5 and 56 credit hours required for internships. Students must be CCJS majors.

## Honors

The Departmental Honors Program provides superior students the opportunity for advanced study in both a seminar format and independent study under the direction of the faculty. Requirements for admission to include: 1) A cumulative GPA of at least 3.25; 2) a GPA in CCJS courses of no less than 3.4; 3) at least 9 completed credits in CCJS at the time of application; and, 4) evidence of satisfactory writing. Meeting these requirements does not guarantee admission – only the top ten applicants will be admitted into the program each year. The application deadline for the 2006-2007 academic year is July 1, 2006. Applications received after this date may be accepted at the discretion of the Honors Director.

The Honors Program is a four-semester (12 required credit hours) sequence, which a student begins in the fall semester of his or her junior year. CCJS 388H is the first course in the sequence, and will only be offered in the fall semester, as of Fall 2005. After completion of 388H, the student may opt for one of two tracks: (1) a year-long empirical thesis project (3 credits per semester) and one graduate seminar in the Department (3 credits); or, (2) two graduate seminars in the Department (3 credits per course) and a literature-based thesis (one semester, 3 credits). The empirical thesis must involve data analysis, whereas the literature-based thesis requires intensive reading for a critical paper. Both thesis options result in a final paper 25-40 pages in length and must be orally defended. Honors students may count their honors courses toward satisfaction of their major curriculum requirements.

Applications are available from the CCJS Advising Office.

Should you have any questions, please contact the director of the Honors Program, Dr. Jean M. McGloin at 301.405.3007 or [jmcgloin@crim.umd.edu](mailto:jmcgloin@crim.umd.edu).

## Awards

Each semester the department selects the outstanding graduating senior for the Peter J. Lejins award.

## Advising

All majors are strongly encouraged to see an advisor at least once each semester. Call 301-405-4729 or email [advising@crim.umd.edu](mailto:advising@crim.umd.edu). Students must obtain department permission from CCJS Advising to enroll in most CCJS classes to determine completion of prerequisites.

Course Code: CCJS

## CURRICULUM AND INSTRUCTION (EDCI)

### College of Education

2311 Benjamin Building, 301-405-3324  
[www.education.umd.edu/EDCI](http://www.education.umd.edu/EDCI)

Professor and Chair: Koziol

Professors: Afflerbach, Dreher, Fey\* (Mathematics), Hammer (Physics), Holliday, Johnson, Oxford, Saracho, Sullivan, VanSledright, Weible, Wiseman

Associate Professors: Campbell, Chambliss, Chazan, Cirrincione\* (Geography), Graeber, McCaleb, McGinnis, O'Flahavan, Slater, Valli  
 Assistant Professors: Brown, Coffey, Kushner, Leavy, Lynn, McDonald, Turner

Emeriti: Amershek, DeLorenzo, Eley, Folstrom, Heidelberg, Henkelman, Jantz, Layman, Marshall, Roderick, Weaver, Wilson

\*Joint appointment with unit indicated

### The Major

The Department of Curriculum and Instruction offers two undergraduate curricula leading to the Bachelor of Science or Bachelor of Arts degree:

1. Elementary Education: for the preparation of teachers of grades 1-6 and middle school, and
2. Secondary Education: for the preparation of teachers in various subject areas for teaching in middle schools and secondary schools, grades 7-12.

All secondary education majors are required to have an academic content major.

The Department has multiple pathways for students who are interested in teaching at the secondary level:

The **Dual Major** option, which is designed for incoming freshmen or sophomores, leads to the Bachelor's degree with a major in an academic content area plus a second major in secondary education. All secondary majors are required to have an academic content major which satisfies the requirements of the academic department and meets the standards for teacher certification. Candidates who follow the proposed sequencing of courses can complete both majors in four years with careful advisement and scheduling.

The **Minor in Secondary Education** provides opportunities for undergraduate subject area majors to enroll in a sequence of education courses that helps them to determine if teaching is a viable career option for them. The 15-18 credit minor may be taken prior to admission into a teacher preparation program. If an undergraduate student pursuing or completing the minor desires to enter an education track, the candidate must apply for the dual major program to obtain certification as a secondary education classroom teacher through completion of a Maryland State Department of Education approved program option. Some of the courses students take to complete the Minor in Secondary Education may also be applicable in certification options at the graduate level offered through the Department of Curriculum and Instruction. These students should consult with an advisor in the Department of Curriculum and Instruction to identify the most appropriate option leading to teacher certification and to review the specific admission requirements associated with these programs.

The **Certificate Program** requires completion of an academic major, including coursework specific to meet certification standards in the certificate area, and a bachelor's degree in an approved academic content area, plus the completion of a certificate program in secondary education to meet requirements in UM's approved program for MSDE certification. Selected coursework from the Minor in Secondary Education may be taken prior to admission to the Certificate Program option.

The **Five-Year Integrated Master's with Certification Program**, which is intended for content majors entering the junior or senior year, is for talented students with a minimum GPA of 3.0 who seek to combine undergraduate studies in the content area and professional education as a foundation for a focused professional year at the graduate level leading to secondary-level certification in the subject field and the Master's of Education degree. As undergraduates, admitted students complete their baccalaureate degrees with a major in the relevant content area and a minimum of 12 credits in professional education studies related to teacher certification requirements. In their fifth year, they enroll in a full-year internship and complete graduate-level professional studies that make them eligible for teacher certification and the master's of education degree.

Detailed information about these secondary education program options is available at the College of Education website, [www.education.umd.edu/student.info](http://www.education.umd.edu/student.info).

Graduates of the Elementary or Secondary Education programs meet the requirements for certification in Maryland and most other states.

### Requirements for Major Including Program Options

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before students may enroll in courses identified as part of the professional sequence, they must complete the selective admission requirements and be fully admitted to the College of Education's Teacher Education Program. An overall grade point average of 2.5 must be maintained after admission to Teacher Education. All teacher candidates are required to obtain satisfactory evaluations on the College of Education Technical Standards and to attain qualifying scores for the State of Maryland on the Praxis I and Praxis II assessments. Praxis I is required for admission, and Praxis II is required for student teaching and graduation. Student teaching is a yearlong internship, which takes place in a Collaborating School (i.e., partner school, PDS - Professional Development School). For more information regarding student teaching, see the College of Education entry in Chapter Six.

### Admission

Admission to the Teacher Education Professional Program is competitive. Admission procedures and criteria are explained in the College of Education entry in Chapter Six.

### Advising

Advising is mandatory for all students. Students receive advising through individual appointments or walk-in hours during the early registration period. Information regarding advising schedules is available each semester. Walk-in advising hours are also posted each semester. Check in the department office, 1207 Benjamin Building.

### ELEMENTARY EDUCATION (Grades 1-6 and Middle School)

Changes in requirements are under review. Consult the Department of Curriculum and Instruction for updated information. Students who complete the elementary education curriculum receive the Bachelor of Science degree and meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate in Elementary Education. Students admitted to Elementary Education must complete the following program, which includes an **Area of Emphasis**.

The **Gateway Requirements** for entrance into the Elementary Teacher Education program include:

- Biological science/lab (4)
- Physical science/lab (4)
- Math 212 (3)
- Math 213 (3)
- EDCI 280 (3) (minimum grade, B)

The 14-16 credits of math and science must be completed with a GPA of 2.7.

**Courses which double count with CORE:** Courses which may satisfy the university's general education requirements (CORE) and which are required in the Elementary Education program of studies follow:

HIST 156 (3) Social and Political History  
 Biological Science/Lab and Physical Science/Lab Gateway Requirements (4,4)  
 Social Science: (3) (Recommended course options: GEOG 100, GVPT 170, SOCY 100, or PSYC 100)

### Other Pre-Professional Requirements:

|  |   |
|--|---|
| EDCI301 or ARTT 100 or ARTT 110  | 3 |
| EDCI 443   | 3 |
| MATH 214   | 3 |
| MUED 155   | 3 |
| SOCY 230 (3) or PSYC 221   | 3 |
| EDMS 410   | 3 |
| EDPL 301 or EDPL 201, or EDPL 210  | 3 |
| EDHD 411 Child Growth and Development<br>(typically taken with the course work listed under Professional Semester 1)                 | 3 |
| EDHD 425 Language Development and Reading Acquisition<br>(typically taken with the course work listed under Professional Semester 1) | 3 |

Course work to complete the **Area of Emphasis (18 semester hours)** can be chosen from the following areas: Communication, Foreign Language, Literature, Mathematics, Science, and Social Studies. The EDCI Advising Office has detailed information regarding each area of emphasis. All pre-professional course work must be completed with a C or better prior to entering Professional Semester 2.

### Professional Education Courses:

#### Professional Semester 1

EDCI 397 Principles and Methods of Teaching in Elementary Schools (3)  
EDCI 385 Computers for Teachers (3)  
EDCI 461 Materials for Creating Skilled and Motivated Readers (K-6) (3)  
(Students typically take EDHD 425 and EDHD 411 as part of Professional Semester 1.)

#### Professional Semester 2

EDCI 322 Curriculum and Instruction in Elementary Ed.: Social Studies (3)  
EDCI 342 Curriculum and Instruction in Elementary Ed.: Language Arts (3)  
EDCI 352 Curriculum and Instruction in Elementary Ed.: Mathematics (3)  
EDCI 362 Curriculum and Instruction in Elementary Ed.: Reading (3)  
EDCI 372 Curriculum and Instruction in Elementary Ed.: Science (3)  
EDCI 488 Classroom Management (1)

#### Professional Semester 3

EDCI 481 Student Teaching: Elementary (12)  
EDCI 464 Reading Instruction and Diagnosis across Content Areas (3)

All pre-professional and professional courses must be completed with a grade of C or better. All CORE and pre-professional requirements, as well as the courses listed for Professional Semester 1, must be successfully completed prior to enrollment in the year-long internship (Professional Semesters 2 and 3). The courses listed for Professional Semester 2 must be completed with a C or better prior to enrolling in Professional Semester 3. A pass on the Praxis II is also required before enrollment in Professional Semester 3.

## SECONDARY EDUCATION PROGRAMS

The Department offers a variety of secondary education programs leading to the Bachelor of Science and Bachelor of Arts degrees. Students who complete a secondary education program at UM meet the Maryland State Department of Education requirements for the Professional Eligibility Certificate. Consult the Department of Curriculum and Instruction for updated information.

## Foreign-Language Requirement, Bachelor of Arts Degree

Language proficiency may be demonstrated in one of several ways:

- Successful completion of level 4 in one language. Students must provide a high school transcript to verify exemption.
- Successful completion of an intermediate-level college foreign language course designated by the department.
- Successful completion of a language placement examination in one of the campus language departments offering such examinations.

Students who have native proficiency in a language other than English should see an advisor in the EDCI advising office, room 1207 Benjamin.

## Art Education (pre K-12)

The Art Education curriculum is designed to prepare students to teach art in elementary and secondary schools. It provides prospective art teachers with a knowledge base about the theories and best practices relevant to effective pedagogy, as well as current education and art education goals and standards. Students admitted to Art Education complete the Bachelor of Arts and are required to have an academic content major.

For more information on the sequence of pre-professional and professional courses, consult the College of Education, Department of Curriculum and Instruction's advising office.

### Pre-Professional/Subject Area Courses

**Note:** Course Sequencing is under review.

ARTT 150 Introduction to Art Theory (3)  
ARTT 100 Two Dimensional Art Fundamentals (3)  
ARTT 110 Elements of Drawing I (3)  
ARTH 200 Art of the Western World to 1300 (3)  
ARTH 201 Art of the Western World after 1300 (3)  
ARTT 200 Three-Dimensional Art Fundamentals (3)

ARTT 210 Elements of Drawing II (3)  
ARTT 320 Elements of Painting (3)  
ARTT 418 Drawing (3)  
ARTT 428 Painting (3)  
EDCI 407 Practicum in Art Education: Three Dimensional (3) (Spring only)  
ARTT 340 ARTT 341, ARTT 342, ARTT 343, ARTT 344  
Elements of Printmaking: Intaglio (3)

### Pre-Professional/Education Courses

EDHD 413 Adolescent Development (3)  
EDHD 426 Cognition & Motivation in Reading:  
Reading in Content Areas I (3)  
EDPL 301 Foundations of Education **or** EDPL 201 **or** EDPL 210 (3)  
EDCI 463 Reading in the Secondary School (3)

### Professional Education Courses

EDCI 300 Discipline Based Art Education (C&I Art Methods) (3) (Spring only)  
EDCI 373 Practicum in Ceramics (Spring only) (3)  
EDSP 470 Introduction to Special Education (3)  
EDCI 403 Teaching of Art Criticism in Public Schools (3) (Fall only)  
EDCI 400 Field Experience in Art Education (1) (Fall only)  
(taken concurrently with EDCI 405)  
EDCI 405 Discipline-Based Art Education Methods II (3) (Fall only)  
EDCI 406 Computers, Art, and Chaos Theory (3) (Fall only)  
EDCI 401 Student Teaching in Elementary School: Art (6)  
EDCI 402 Student Teaching in Secondary Schools: Art (6)  
EDCI 474 Inclusion, Diversity and Professionalism (2)  
EDCI 488 Student Teaching Seminar (1)

## English Education (Grades 7-12)

Students who complete the English Education curriculum receive the Bachelor of Arts degree and meet the MSDE requirements for the Professional Eligibility Certificate. Students admitted to English Education are required to have an academic content major and must complete the following program requirements. *Please check with the ENGL department regarding specific coursework.*

### Pre-Professional/Subject Area Courses

COMM107 Oral Communication: Principles and Practices, **or** COMM125 Introduction to Interpersonal Communication, **or** COMM220 Small Group Discussion (3)  
COMM230 Argumentation and Debate **or** COMM330 Argumentation and Public Policy **or** COMM383 Urban Communication **or** COMM402 Communication Theory and Process (3)  
Foreign Language (Intermediate mastery of a modern **or** classical language is required.) (8 credits)  
ENGL280 Introduction to the English Language (3)  
ENGL101 Introduction to Writing **or** ENGL101H Honors Composition (3) (If exempt from ENGL101, majors are required to take ENGL291 Intermediate Writing **or** ENGL294 Introduction to Creative Writing.)  
ENGL201 Western World Literature, Homer to the Renaissance, **or** ENGL202 Western World Literature, Renaissance to the Present (3)  
ENGL301 Critical Methods in the Study of Literature (3)  
ENGL304 The Major Works of Shakespeare **or** ENGL403 Shakespeare: The Early Works **or** ENGL404 Shakespeare: The Later Works (3)

British and American Literature: one upper-level course in five out of the following six areas to be taken during the sophomore and junior years (15 credits total; one of these five courses must be in American Literature):

- Medieval Literature
- Renaissance Literature other than Shakespeare
- Restoration or 18th Century Literature
- 19th Century British Literature
- American Literature before 1900
- 20th Century British or American Literature

ENGL384 Concepts of Grammar **or** ENGL383 The Uses of Language **or** ENGL385 English Semantics **or** ENGL482 History of the English Language (**or** ENGL483, 484, 486, 489)  
ENGL391 Advanced Composition **or** ENGL393 Technical Writing **or** ENGL493 Advanced Expository Writing  
ENGL399 Senior Seminar (3)  
ENGL487 Foundations of Rhetoric **or** COMM360 The Rhetoric of Black America **or** COMM401 Interpreting Strategic Discourse **or** COMM453 The Power of Discourse in American Life (3)  
ENGL Elective Women **or** minority course (3)



## 108 Curriculum and Instruction

### Pre-Professional/Education Courses

EDPL301 Foundations of Education **or** EDPL 201 **or** EDPL 210 (3)  
EDHD413 Adolescent Development (3)  
EDHD426 Cognition & Motivation in Reading:  
Reading in Content Areas I (3)  
EDCI463 Reading in the Secondary School (3)

### Professional Education Courses

EDCI466 Literature for Adolescents (3) (Spring only)  
EDCI467 Teaching Writing (3) (Fall only, Senior Year)  
EDCI416 Curriculum and Instruction in Secondary Education:  
English, Speech, Theater (3) (Fall only, Junior Year)  
EDCI417 Bases for English Language Instruction (3) (Fall only, Senior Year)  
EDCI447 Field Experience in English Teaching  
(concurrent with EDCI417) (1)  
EDCI440 Student Teaching Seminar in Secondary Education:  
English (concurrent with EDCI441) (1)  
EDCI441 Student Teaching in Secondary Schools: English (12)  
EDCI474 Inclusion, Diversity and Professionalism (2)

For more information on the sequence of pre-professional and professional courses, consult the College of Education, Department of Curriculum and Instruction (Room 1207, Benjamin).

## Foreign Language Education (Grades 7-12)

The Foreign Language (FL) Education curriculum is designed for prospective foreign language teachers in grades 7-12 who have been admitted to the EDCI Teacher Education Program. Currently, admission is open to qualified students seeking teacher certification in Spanish, French, Russian, Italian, and German. Other languages might be added later for teacher certification. Students enrolled in foreign language education are required to have an academic content major. Consult with an advisor in the Department of Curriculum and Instruction for further information.

A minimum of six hours of intermediate-level language course work in the student's major language must precede the required 300-400 level courses. The latter are comprised of a minimum of 30 hours of prescribed course work that includes the areas of reading strategies, grammar and composition, conversation, literature, civilization and culture, and linguistics. Students must also take a minimum of nine hours (three courses) of electives in a related area. The second area of concentration must be approved by a FL advisor.

The following requirements must be met with the FL Education program:

### Pre-Professional/Subject Area Courses

Primary FL Area Intermediate (200 level) (3,3)  
Primary FL Area Reading Strategies (3)  
Primary FL Area Grammar and Composition (300-400 levels) (3,3)  
Primary FL Area Survey of Literature (300-400 levels) (3,3)  
Primary FL Area Conversation (300-400 levels) (3)  
Primary FL Area Literature (400-above levels) (3,3)  
Primary FL Area Culture and Civilization (3,3)  
Applied Linguistics (in the Primary FL Area if available; otherwise, LING 200 **or** ANTH 371 FL Phonetics may satisfy this requirement; check with your advisor). (3)  
Electives in Supporting Area/FL-Related Courses (9 hours-minimum of three courses).

In almost all instances, Primary FL Area courses must have been completed prior to the Student Teaching semester. Any substitutions for the above must be pre-approved by a FL Education Advisor.

**Note:** The pre-professional courses vary by subject area. Consult the academic department for the specific course requirements for each language area.

### Pre-Professional/Education Courses

EDPL 301 Foundations of Education **or** EDPL 201 **or** EDPL 210 (3)  
EDHD 413 Adolescent Development (3)  
EDHD 426 Cognition & Motivation in Reading: Reading in  
Content Areas I (3)  
EDCI 463 Reading in the Secondary School (3)

### Professional Education Courses

EDCI 330 Curriculum and Instruction in Secondary Education: Foreign  
Language (3) (Fall only)  
EDCI 433 Introduction to Foreign Language Methods (3) (Fall only)  
EDCI 438 Field Experience in Second Language Education (1) (Fall only)  
EDCI 488 Student Teaching Seminar in Secondary Education: Foreign  
Language (1)  
EDCI 431 Student Teaching in Secondary Schools: Foreign Language (12)  
EDCI 474 Inclusion, Diversity, and Professionalism (1)

## Mathematics Education (Grades 7-12)

Students who wish to be certified to teach mathematics at the secondary level and who have not yet been accepted into the College of Education must complete the requirements for the Mathematics Major - Secondary Education Track. Please check with the mathematics department for specific math courses to be taken.

### Pre-Professional/Education Courses

EDHD 413 Adolescent Development (3)  
EDHD 426 Cognition & Motivation in Reading: Reading in Content Areas  
I (3)  
EDPL 301 Foundations of Education **or** EDPL 201 **or** EDPL 210 (3)  
EDCI 463 Reading in the Secondary School (3)

### Professional Education Courses

EDCI 457 Teaching Secondary Students with Difficulties in Learning  
Mathematics (3) (Fall only, Junior Year)  
EDCI 455 Curriculum and Instruction in Secondary Education: Mathematics  
(3) (Fall only, Senior Year)  
EDCI 355 Field Experience in Secondary Mathematics Education (1)  
(Fall only, Senior Year)  
EDCI 450 Student Teaching Seminar in Secondary Education: Mathematics  
(1)  
EDCI 488 Student Teaching in Secondary Schools: Mathematics (12)  
EDCI 474 Inclusion, Diversity, and Professionalism (2)

## Science Education (Grades 7-12)

Please check with the science department regarding specific course work.

Students may earn credentials in biology, chemistry, geology, or physics. All students admitted to the secondary program in science education must complete a major in their area of specialization. Students should consult the respective departments for requirements. For more information, please see [education.www.umd.edu/science](http://education.www.umd.edu/science).

### Pre-Professional Education Courses

EDPL 301 Foundations of Education **or** EDPL 201 **or** EDPL 210 (3)  
EDHD 426 Cognition & Motivation in Reading: Reading in Content  
Areas I (3)  
EDHD 413 Adolescent Development (3)  
EDCI 463 Reading in the Secondary School (3)

### Professional Education Courses

All areas of science education will be required to complete the following professional education courses:

EDCI 370 Curriculum & Instruction in Secondary Education: Science (3)  
(Fall only)  
EDCI 375 Field Experience in Science Education (1)  
EDCI 470 Practices of Teaching Science (3) (Fall only, Senior Year)  
EDCI 471 Student Teaching in Secondary Schools: Science (12)  
EDCI 474 Inclusion, Diversity, and Professionalism (2)  
EDCI 488 Seminar (2)

## Social Studies Education (Grades 7-12)

Students in the Social Studies Education program may select an area of concentration in history, geography, or government and politics. Each concentration follows the general requirements of their respective majors in addition to the pre-professional/subject area supporting course work required for certification. Students may elect to complete the program for certification in Social Studies by choosing one of three options for completing the program.

**Option I: HISTORY:** This option, which requires completion of the foreign language requirement, is primarily for those students earning their initial degree. Requires 68 semester hours of which 39 credit hours must be in history.

**Note:** The history major requires completion of UNIV 101 and a foreign language requirement through the intermediate level. See ARHU advisor for details.

### Pre-Professional/Subject Area Courses

#### Introductory Courses:

HIST 156 (3) (CORE: SH)  
HIST 157 (3) (CORE: SH)  
100-200 level HIST (non-US, >1500) (3) (See advisor for approved courses)  
HIST 209 **or** HIST 220 (3)  
HIST 309 (3)

**History Electives: (24 credits)**

18 credits at the junior/senior level  
 15 credits must be in a concentration  
 1 course must be non-Western

In addition to the required credit hours in history, the social studies education program requires 29 credit hours of course work in geography and the social sciences as outlined below.

GEOG 100 (3) (CORE: SB)  
 GEOG 201/211 (3/1) (CORE: PL)  
 SOCY **or** ANTH (3)  
 ECON 200 (4)  
 ECON Elective (3)  
 GVPT 100, 260, **or** 280 (3) (CORE: SB)  
 GVPT 170 (3) (CORE: SB)

**Geography/Social Science Electives (6) (junior-senior level)**

One course in Ethnic Minority Studies (U.S. orientation); can be one of the above courses in history, geography, or social sciences (3).

**Option II: GEOGRAPHY:** This option is primarily for those students earning their initial degree. Requires 60 credit hours of Pre-professional/Subject Area course work. Thirty-five credit hours must be in geography. GEOG 201, 211, 202, 212 are required. Nine credit hours of 300 level Gateway courses must be taken in physical geography, human geography, and geographic techniques. The remaining 18 credit hours must include a quantitative methods course and 15 credit hours of upper level systematic geography courses.

**Pre-Professional/Subject Area Courses****Primary Courses:**

GEOG 201/211 (3) (1)  
 GEOG 202/212 (3) (1)

**Gateway Courses:**

300 level physical course (3)  
 300 level human course (3)  
 300 level technique course (3)

Upper Level Geography Electives (15)  
 Quantitative Methods (3)

In addition to the required credit hours in geography, the social studies education program requires 25 credit hours of course work in history and the social sciences as outlined below.

SOCY **or** ANTH (3)  
 ECON 200/CORE (4)  
 ECON Elective (3)  
 GVPT 100, 260, **or** 280 (3)  
 GVPT 170/CORE (3)  
 HIST 156 **or** 157/CORE (3)  
 HIST (non-Western 100/200 level) (3)  
 History/Social Science Elective - Junior **or** Senior level (3)

One course in Ethnic Minority Studies (U.S. orientation); can be one of the above courses in social sciences or history (3).

**Option III: GOVERNMENT AND POLITICS:** The Government and Politics program is under review. Please check with the Government Department regarding specific course work. This option is primarily for those students earning their initial degree. Requires a minimum of 65 credit hours of preprofessional/subject area course work. Thirty-six hours must be in GVPT. GVPT 100, 170, and 241 are required. At least eighteen of the thirty-six credit hours must be upper-level courses.

All GVPT majors must also complete an approved skills option (a foreign language or three quantitative courses from a select list - see GVPT advising office.)

In addition, the GVPT program is a Limited Enrollment Program (LEP). See GVPT advisor for specific admission requirements.

**Pre-Professional/Subject Area Courses****Introductory Courses:**

GVPT 100/CORE (3)  
 GVPT 170/CORE (3)  
 GVPT 241 (3)  
 GVPT Electives (9)  
 GVPT Upper Level Courses (18)  
 Social Science Quantitative Courses or Foreign Language (see GVPT advisor)

In addition to the required credit hours in GVPT, the social studies education program requires 26 credit hours of course work in history and the social sciences as outlined below.

HIST 156 **or** 157/CORE (3)  
 HIST (non-Western 100/200 level) (3)  
 SOCY **or** ANTH (3)  
 ECON 200/CORE (4)  
 ECON Elective (3)  
 Upper Level GEOG/HIST (3)  
 GEOG 201 AND 211/CORE (3/1)  
 GEOG 100/CORE (3)

One course in Ethnic Minority Studies (U.S. orientation); can be one of the above courses in social sciences or history (3).

All options must complete the following Education course work:

**Pre-Professional/Education Courses**

EDPL 301 Foundations of Education **or** EDPL 201 **or** EDPL 210 (3)  
 EDHD 413 Adolescent Development (3)  
 EDHD 426 Cognition & Motivation in Reading: Reading in the Content Areas I (3)  
 EDCI463 Reading in the Secondary School (3)

**Professional Education Courses**

EDCI 426 Materials & Resources in Social Studies (3)  
 (Fall only, Junior Year)  
 EDCI 427 Curriculum and Instruction in Secondary Education - Social Studies (3) (Fall only, Senior Year)  
 EDCI 428 Field Experience in Secondary Social Studies Teaching (1)  
 co-requirement EDCI 320 (Fall only)  
 EDCI 421 Student Teaching in Secondary Schools: Social Studies (12)  
 EDCI 474 Inclusion, Diversity, and Professionalism (2)  
 EDCI 488 Student Teaching Seminar in Secondary Education: Social Studies (1)

Course Code: EDCI

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**DANCE (DANC)****College of Arts and Humanities**

Clarice Smith Performing Arts Center, 301-405-3180

Acting Chair: Rutherford  
 Professors: Rosen, A. Warren, Wiltz  
 Associate Professor: Bradley  
 Assistant Professor: Yarkin  
 Instructor: Mayes  
 Emeriti: Madden, L. Warren  
 Lecturers: Druker, Jackson  
 Accompanist: Johnson

**The Major**

The undergraduate curriculum, which leads toward a B.A. degree in Dance, is designed to facilitate the acquisition of new movement skills, enhance creativity, and develop scholarly insights in the field. Comprehensive studio and theory courses provide a foundation for a range of careers in dance. Students may choose to study a particular aspect of dance in depth, such as performance, choreography, or production; or they may choose to merge their interest in dance with an interest in another field of study. Graduates of the program pursue graduate work in dance as well as careers as professional dancers and choreographers, university and secondary school teachers, dance managers, and dance critics. They also work in the fields of dance medicine and therapy.

The dance faculty is composed of a number of distinguished teachers, choreographers, and performers, each one a specialist in his or her own field. Visiting artists throughout the year make additional contributions to the program. There are performance and choreographic opportunities for all dance students, ranging from informal workshops to fully mounted concerts both on and off campus.

**Requirements for the Major**

Students must complete 57 semester hours of dance credits. Of these, 18 hours of modern technique at the Dance 248 and above level and four hours of ballet technique at the Dance 228 and above level are required. The remaining 35 credits must be distributed as follows:

## 110 Dietetics

|  |   |
|--|---|
| DANC 102 Rhythmic Training                 | 2 |
| DANC 109 Improvisation                     | 2 |
| DANC 200 Introduction to Dance             | 3 |
| DANC 210 Dance Production                  | 3 |
| DANC 208, 308, 388 Choreography I, II, III | 9 |
| DANC 305 Principles of Teaching            | 3 |
| DANC 370 Kinesiology for Dancers           | 4 |
| DANC 466 Laban Movement Analysis           | 3 |
| DANC 483 Dance History II                  | 3 |
| DANC 485 Seminar in Dance                  | 3 |

A grade of C or higher must be attained in all dance courses.

New, re-entering, and transfer students are expected to contact the department following admission to the university for instructions regarding advising and registration procedures. Although entrance auditions are not required, some previous dance experience is highly desirable.

Departmental advising is mandatory each semester.

Course Code: DANC

## DIETETICS

For more information, consult Nutrition and Food Science later in this chapter.

## ECONOMICS (ECON)

### College of Behavioral and Social Sciences

Office of Undergraduate Studies: 3105 Tydings, 301-405-3505

Undergraduate Advisor: 3127A Tydings, 301-405-3503

3127C Tydings, 301-405-3513

Chair: Murrell

Professors: Ausubel, Betancourt, Calvo, Cramton, Cropper, Drazen, Evans, Haltiwanger, Hulten, Kelejian, Kranton, Mendoza, Montgomery, Murrell, Oates, Prucha, Reinhart, Rust, Sanders, Schwab, Straszheim, Vegh, Vincent, Wallis

Associate Professors: Chao, Coughlin, Duggan, Gelbach, Hellerstein, Minehart, Shea

Assistant Professors: Aruoba, Jin, Limão, McKelvey, Pries, Soares

Professor Emeritus: Adams, Almon, Bennett, Bergmann, Brechling, Clague, Cumberland, Dardis, Dorsey, Harris, McGuire, Meyer, O'Connell, Polakoff, Schelling, Wonnacott

### The Major

Economics is the study of the production, pricing, and distribution of goods and services within societies. Economists study such problems as inflation, unemployment, technical change, poverty, environmental quality, and foreign trade. Economists also apply economics to such diverse areas as crime, health care and the elderly, discrimination, urban development, and developing nation problems.

Two characteristics of modern economics receive special attention in the department's program. Government policies have profound effects on how our economic system performs. Government expenditures, regulations, and taxation either directly or indirectly affect both households and firms. Second, there is a growing interdependency among economies throughout the world. Extensive worldwide markets exist in which goods and services are traded, and capital and investments move across national boundaries. Economic events in one nation are often quickly transmitted to other nations.

Economists study these phenomena through the development of systematic principles and analytic models which describe how economic agents behave and interact. These models are the subject of empirical testing, often using computers and extensive data sets.

The interests of the faculty, as reflected in the course offerings, are both theoretical and applied. As a large, diverse department, the economics department offers courses in all of the major fields of economic study. The department's program stresses the application of economic theory and econometrics to current problems in a large number of fields. Many courses in the department's program analyze the role of the government and public policies on the economy.

The program is designed to serve both majors and non-majors. The department offers a wide variety of upper-level courses on particular economic issues which can be taken after one or two semesters of basic principles. These courses can be especially useful for those planning careers in law, business, or the public sector. The program for majors is designed to serve those who will seek employment immediately after college as well as those who will pursue graduate study.

Economics majors have a wide variety of career options in both the private and public sectors. These include careers in state and local government, federal and international agencies, business, finance and banking, journalism, teaching, politics and law. Many economics majors pursue graduate work in economics or another social science, law, business or public administration (public policy, health, urban and regional planning, education, and industrial relations).

### Requirements for Major

In addition to the university's general education (CORE) requirements, the requirements for the Economics major are as follows:

#### (1) Economics (and Mathematics) Courses (36 hours)

Economics majors must earn 35 credit hours in Economics, and 3 credit hours in Calculus (MATH 220 or 140), with a grade of C or better in each course. All majors must complete 14 hours of fundamental requirements. The fundamental requirements include ECON 200, ECON 201, ECON 305 and ECON 306.

Students must also complete 21 hours in upper level Economics courses:

- three hours in statistics; ECON 321 or STAT 400 (check with advisor). Majors who declared after January 1, 1998, must take ECON 321 or STAT 400.
- three hours in economic history or comparative systems; ECON 310, 311, 312, 314, 315, 380, 410 or 416
- nine hours in courses with at least one semester of intermediate theory (ECON 305 or 306) or economic statistics (ECON 321) as a prerequisite. As of September 1, 1999, all 400 level Economics classes meet this requirement. ECON 430, 449, 450, 451, 465, and 490 taken before that date do not fulfill the requirement;
- six other hours in any upper-division economics course except ECON 386.

#### (2) Additional Supporting Courses (15 hours)

Students must earn 15 hours of credit in upper-division courses in addition to the 38 hours of Economics (and Mathematics) courses listed above and the university's CORE requirements. Upper division courses include all courses with a 300 number and above except the Junior English writing class, internships, experiential learning, and "non-traditional" courses. Additional mathematics courses beyond the required mathematics course (MATH 220 or 140), and computer programming courses at the 200-level and above may be counted as fulfilling the Additional Support Course Requirement. Additional economics courses may be included among the 15 hours of supporting courses. All supporting courses must be approved by an Economics Department Advisor.

All courses meeting this Additional Supporting Course requirement must be completed with a grade of C or better and may not be taken pass-fail except ECON 386, which can only be taken pass-fail.

### Study Sequences and Plans of Study

Economics is an analytic discipline, building on a core of principles, analytic models, and statistical techniques. Students must begin with a foundation in mathematics and economic principles (ECON 200 and ECON 201). A more advanced, analytic treatment of economics is presented in intermediate theory (ECON 305 and ECON 306), which is a necessary background for in-depth study by economics majors.

Students declaring Economics as their major must meet satisfactory progress benchmarks for the major. These benchmarks are not applicable to freshmen declaring Economics as their major; these students should meet with an advisor to set appropriate expectations and an academic plan for their Economics course work. Otherwise, Economics majors must complete (with a grade of 'C' or higher) ECON200, ECON201, MATH220 or 140, and ECON306 within 30 attempted credits of entering the major. The College also requires the completion of four CORE Distributive Studies courses (which can include ECON200, ECON201, and Calculus), as well as the English Fundamental Studies requirement.

In addition to the benchmark courses included above, students must complete ECON305 and ECON321 (with a grade of 'C' or higher) within 45 attempted credits of entering the major."

Empirical research and the use of computers are becoming increasingly important in economics. All students are well advised to include as many statistics, econometrics, and analytical courses in their curriculum as possible including courses that utilize statistical package applications and their programming.

Those students planning to pursue graduate study in economics must begin to prepare themselves analytically for graduate work by focusing on theory, statistics, and mathematics in their undergraduate curriculum. These students should consider the advanced theory courses and the econometrics sequence. Mastery of the calculus and linear algebra is essential for success in many of the top graduate schools. Students should consider MATH 140, MATH 141, MATH 240 (or MATH 400), MATH 241 and MATH 246 as very useful preparation.

## Advising

The department has academic advisors providing advising on a walk-in basis in the Office of Undergraduate Advising, 3127A & C Tydings Hall.

## Honors

The Economics Honors Program provides economics majors with the opportunity for advanced study in a seminar format, with faculty supervision of seminar papers and an honors thesis. The Honors Program is designed for students intending to attend graduate school or those seeking an in-depth study of economic theory and its application to economic problems.

The Honors Program is a 12-hour sequence, culminating in the completion of a senior thesis. Students must complete ECON 422 prior to their senior year. Students must also complete ECON 396 (Honors Workshop) and ECON 397 (Honors Thesis) in their senior year, as well as one of the following four courses: ECON 407, 414, 423, 425. Students must complete these 12 hours with a GPA of 3.5. ECON 396 is offered only in the fall term and students must have completed ECON 422 as a prerequisite to ECON 396.

To be eligible for admission, a student must have completed 15 hours of economics with a GPA of 3.25. Interested students should meet with the Director of Undergraduate Studies at the earliest possible date to review their curriculum plans and to apply for admission to the program.

## Awards

The Dudley and Louisa Dillard Prize, currently \$1,000, is awarded to the outstanding Economics junior and senior with a broad liberal arts program.

The Sujon Guha Prize, currently \$500, is awarded to the best Honors Thesis in Economics.

The Martin Moskowitz Awards provides scholarships to students based on academic excellence, financial need, and a demonstrated commitment to and philosophy of public service.

## Student Organizations

Omicron Delta Epsilon is the economics honorary society. Please see the Undergraduate Economics Coordinator in 3105 Tydings for membership information.

The Economics Association of Maryland is an undergraduate club that meets regularly to discuss graduate study in economics and other fields, employment opportunities, and recent economic trends. Please see the Undergraduate Advisor in 3127C Tydings for more information.

Course Code: ECON

## EDUCATION POLICY AND LEADERSHIP (EDPL)

### College of Education

2110 Benjamin Building, 301-405-3570  
[www.education.umd.edu/EDPL](http://www.education.umd.edu/EDPL)

Professor and Interim Chair: Weible  
 Professors: Finkelstein†, Hultgren, Klees, Malen, Selden  
 Associate Professors: Croninger, Fries-Britt, Herschbach, Lin, Mawhinney, Milem, Rice

Assistant Professors: Cossentino, Honig, Spreen  
 Emeriti: Berdahl†, Berman, Birnbaum, Carbone, Clague, Dudley, Hawley, McLoone, Newell, Schmidtlein, Splaine, Stephens  
 Professors of Practice: Parham, Richardson, Williams  
 †Distinguished Scholar Teacher

While the department does not have an undergraduate major, it does offer a number of courses which are open to undergraduates and are suggested for students interested in studying the role of education in society or considering graduate work in education policy and leadership. Particular courses of interest include Foundations of Education and Education in Contemporary American Society, and Historical and Philosophical Perspectives on Education.

Course Code: EDPL

## ELECTRICAL ENGINEERING (ENEE)

### A. James Clark School of Engineering

#### Department of Electrical and Computer Engineering

2429 A.V. Williams Building, 301-405-3685

E-mail: [eeadv@deans.umd.edu](mailto:eeadv@deans.umd.edu)

[www.ece.umd.edu](http://www.ece.umd.edu)

Chair: O'Shea

Associate Chairs: Blankenship (External Relations), Franklin (Graduate Studies)

Professors: Abed, Antonsen, Baras, Barbe, Barg, Blankenship, Chellappa†, Dagenais, Davis†, DeClaris, Destler†, Ephremides, Farvardin, Gligor, Goldbar, Goldsman, Granatstein, Ho, Iliadis, Jaja, Krishnaprasad, Lawson, Levine, Liu, Makowski, Marcus†, Mayergoyz†, Melngailis, Milchberg†, Nakajima, Narayan, Newcomb, Orloff, Oruc, O'Shea, Ott††, Peckerar, Rabin, Shamma, Shayman, Titts, Vishkin, Yang, Zaki

Associate Professors: Bhattacharyya, Espy-Wilson, Franklin, Ghodssi, Gomez, Jacob, Horiuchi, Papamarcou, Silio, Tretter, Yeung

Assistant Professors: Abshire, Barua, La, Martins, Murphy, Petrov, Qu, Simon, Srivastava, Ulukus, Wu  
 Emeriti: Davisson, Emad, Harger, Lee, Ligomenides, Lin, Pugsley, Reiser, Rhee, Striffler, Taylor, Wagner

## The Major

The Electrical Engineering major is intended to prepare students to function as effective citizens and engineers in an increasingly technological world as well as in science and engineering subjects. Depth as well as breadth is required in the humanities and social sciences to understand the economic, ecologic, and human factors involved in reaching the best solutions to today's problems.

The basic foundation in mathematical, physical, and engineering sciences is established in the first two years of the curriculum. A core of required Electrical Engineering courses is followed by a flexible structure of electives that allows either breadth or specialization. Appropriate choices of electives can prepare an Electrical Engineering major for a career as a practicing engineer and/or for graduate study.

Areas stressed in the major include communication systems, computer systems, control systems, engineering electromagnetics, microelectronics, and power systems. Within these areas are courses in such topics as solid state electronics, integrated circuits, lasers, communications engineering, computer design, power engineering, digital signal processing, antenna design, and many others. Project courses allow undergraduates to undertake independent study under the guidance of a faculty member in an area of mutual interest.

## Educational Objectives

The educational objectives are broadly stated goals agreed upon by a consensus of the faculty pertaining to accomplishments or level of achievement desired of our students 3-5 years after graduation. These fall under the following four headings:

1. *Technical Knowledge:* Graduate engineers trained in the fundamentals of electrical engineering and relevant specialties so they are prepared to succeed in graduate school and/or be productive engineers in government or industry.
2. *Laboratory, Design, and Research:* Graduate engineers who can design and perform experimental projects to solve diverse problems, with special emphasis on exploiting diverse technical knowledge and skills so they can engage in design work or research.

## 112 Electrical Engineering

3. *Preparation for Further Study:* Graduate engineers who have the educational foundations and skills necessary to engage in lifelong learning in every sphere of their life.
4. *Professionalism:* Graduate engineers who have the professional skills they need to succeed in their chosen profession and are prepared to fulfill their professional responsibilities as engineers, which include their ethical obligations to society, employers, employees, and fellow engineers.

### Educational Opportunities

The program offers many educational opportunities. Most of these are designed to impart knowledge and skills required of all our students so that by the time of graduation they are prepared to achieve Educational Objectives. Other opportunities are optional and offered for interested and qualified students. The educational opportunities are:

1. *Broad Foundation:* Understanding of and ability to apply relevant mathematical, scientific, and basic engineering knowledge.
2. *Disciplinary Foundation:* Understanding of and ability to apply core electrical engineering technical knowledge.
3. *Specialization:* Understanding of and ability to apply the skills and concepts within one or more of the specializations within electrical engineering.
4. *Laboratory:* Understanding of and ability to employ standard experimental techniques to generate and analyze data as well as use state-of-the-art software and instrumentation to solve electrical engineering problems.
5. *Design:* Theoretical understanding of and ability to engage in the creative design process through the integration and application of diverse technical knowledge and expertise to meet customer needs and address social issues.
6. *Research:* Ability to formulate and answer empirical and theoretical questions through participation in undergraduate research projects for interested and qualified students.
7. *Leadership:* Awareness of the need for engineering leaders both within the profession and the larger community, as well as some preparation to assume those leadership roles.
8. *Communication Skills:* Ability to communicate effectively both through oral presentations and the written word.
9. *Interpersonal Skills:* Ability to interact professionally with others in the workplace, to engage effectively in teamwork, and to function productively on multidisciplinary group projects.
10. *Engineering Ethics:* Understanding of the engineer's responsibilities to employers, society, and their fellow engineers as well as an ability to recognize potential and actual ethical problems, analyze critically those situations, and formulate sound ethical decisions.
11. *Engineering & Society:* Understanding of the symbiotic relationship between engineering and society – specifically, how engineering artifacts are shaped by and incorporate human values as well as the ways in which engineering solutions impact society – and the larger social obligations this entails for engineers.
12. *Life-long Learning:* Skills necessary to engage in life-long learning and an understanding of the need to continually exploit those skills in refining and updating one's knowledge base.

### Requirements for Major

Requirements for the Electrical Engineering major include thorough preparation in mathematics, physics, chemistry, and engineering science. Elective courses must include both Electrical Engineering courses and technical courses outside the department. **Students must earn a grade of 'C' or higher in all engineering, mathematics, and science courses as well as the prerequisites for these courses.** A sample program is shown below.

|   | Semester  |           |
|---|-----------|-----------|
|   | I         | II        |
| <b>Freshman Year</b>                        |           |           |
| CHEM 135 General Chemistry for Engineers    | 3         |           |
| PHYS 161 General Physics                    |           | 3         |
| MATH 140, 141 Calculus I, II                | 4         | 4         |
| ENES 100 Intro. To Engineering Design       | 3         |           |
| ENEE 114 Programming Concepts for Engineers |           | 4         |
| CORE General Education*                     | 3         | 3         |
| <b>Total</b>                                | <b>13</b> | <b>14</b> |

|  |           |           |
|--|-----------|-----------|
| <b>Sophomore Year</b>                        |           |           |
| MATH 241 Calculus III                        | 4         |           |
| MATH 246 Differential Equations              |           | 3         |
| PHYS 260 & 261 General Physics II            | 4         |           |
| PHYS 270 & 271 General Physics III           |           | 4         |
| ENEE 241 Numerical Techniques in Engineering | 3         |           |
| ENEE 244 Digital Logic Design                | 3         |           |
| ENEE 204 Basic Circuit Theory                |           | 3         |
| ENEE 206 Digital Circuits Lab                |           | 2         |
| CORE General Education*                      | 3         | 3         |
| <b>Total</b>                                 | <b>17</b> | <b>15</b> |

|  |           |           |
|--|-----------|-----------|
| <b>Junior Year</b>                       |           |           |
| MATH 4xx** Advanced Elective Math        |           | 3         |
| ENEE 303 Analog and Digital Electronics  | 3         |           |
| ENEE 307 Electronics Circuits Design Lab | 2         |           |
| ENEE 313 Intro. to Device Physics        | 3         |           |
| ENEE 322 Signal and System Theory        | 3         |           |
| ENEE 324 Engineering Probability         |           | 3         |
| ENEE 350 Computer Organization           |           | 3         |
| ENEE 380 Electromagnetic Theory          | 3         |           |
| ENEE 381 Electromagnetic Wave Program    |           | 3         |
| CORE General Education*                  |           | 3         |
| <b>Total</b>                             | <b>14</b> | <b>15</b> |

|  |           |           |
|--|-----------|-----------|
| <b>Senior Year</b>                             |           |           |
| Technical Electives NON-EE Technical Electives | 3         | 6         |
| Technical Electives EE Electives               | 7         | 6         |
| ENGL 393 Junior English                        | 3         |           |
| CORE General Education*                        | 3         | 3         |
| <b>Total</b>                                   | <b>16</b> | <b>15</b> |

\* **Note:** Schedule assumes one CORE class satisfies the CORE Cultural Diversity requirement.

\*\*Must come from list of courses approved for the Non-EE Technical Elective requirement.

### Electrical Engineering Majors

New EE Technical Elective Requirements\*

Effective Spring 2001, all BSEE graduates must distribute their 13 credits of EE technical electives among the following course categories:

|            |  |
|------------|--|
| Category A | Advanced Theory and Applications: minimum of 3 credits |
| Category B | Advanced Laboratory: minimum of 2 credits              |
| Category C | Capstone Design: minimum of 3 credits                  |

Please read carefully, and make a note of, the following special cases and other items:

1. Two credits of ENEE 499, Senior Projects in Electrical and Computer Engineering, may be used to satisfy the Advanced Laboratory requirement subject to approval by the faculty supervisor and the Associate Chair. The maximum number of ENEE 499 credits that may be applied towards EE technical elective requirements is five.
2. Additional Capstone Design courses can be used as substitutes for
  - the required Advanced Theory and Applications course; and/or
  - the required Advanced Laboratory course, provided one of the following is completed: ENEE 408A, 408B, 408C, or 408F.
3. Completion of ENEE 408A and ENEE 459A satisfies both the Capstone Design and Advanced Laboratory requirements.
4. If you have any questions on how these requirements affect your current selection of senior EE electives, please contact an advisor.

### Admission

Admission requirements are the same as those of other departments. (See A. James Clark School of Engineering section on Entrance Requirements.)

## Advising

In addition to the associate chair and the Director and Associate Director of Undergraduate Studies, faculty in Electrical and Computer Engineering function as undergraduate advisors. Departmental approval is required for registration in all courses in the major. The department's Undergraduate Office (2429 A.V. Williams Building, 301-405-3685) is the contact point for undergraduate advising questions.

## Cooperative Education Program

Participation in the Cooperative Education Program is encouraged. See A. James Clark School of Engineering entry in chapter 6 for details.

## Departmental Honors

The Electrical and Computer Engineering Honors Program is intended to provide a more challenging and rewarding undergraduate experience for students pursuing the baccalaureate in Electrical or Computer Engineering. The program requires students to complete honors versions of four junior level electrical engineering courses and an honors project during the senior year. Students completing all program requirements with a 'B' average (3.0 on a 4.0 scale) and a cumulative GPA of 3.0 for all undergraduate work will have their participation noted on their B.S. diploma.

## Financial Assistance

Several corporate scholarships are administered through the department. Information and scholarship applications are available from either the Electrical Engineering Undergraduate Office, 2429 A.V. Williams Building, 405-3685, or the A. James Clark School of Engineering Student Affairs Office, 1131 Engineering Classroom Building, 405-3860.

## Job Opportunities

Electrical engineers were primarily responsible for the recent revolutions in the music and telecommunications industries. They remain at the forefront of cutting edge developments and innovations in nanotechnology, robotics, and other technologies. Electrical engineers also have wide ranging employment opportunities in other fields including electronics, microelectronics, communications and signal processing, power systems, electrophysics, computer architecture, circuits, antennas, and control systems. Specific jobs include developing fiber optic technology, lasers for biomedical applications, software for robots, electronic weapons systems, advanced wireless networks, and neuron-like sensors for various applications.

## Research Labs

The Department of Electrical and Computer Engineering is affiliated with more than 40 specialized laboratories, supporting activities including: speech and image processing, high performance systems, mobile computing and multimedia, communication networks, robotics, control systems, neural systems, systems integration, VLSI design and testing, experimental software engineering, semiconductor materials and devices, photonics, fiber optics, ion beam lithography, real-time systems, human-computer interaction, and virtual reality.

## Student Organizations

There is an active Student Chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and membership applications are available in the Electrical and Computer Engineering undergraduate lounge, 0107 Glenn L. Martin Hall. Equally active is the chapter of Eta Kappa Nu, the nationwide Electrical Engineering honorary society. Information on eligibility can be obtained in the HKN lounge, 1154 Engineering Laboratory Building.

Course code: ENEE

# ENGINEERING, BACHELOR OF SCIENCE

## A. James Clark School of Engineering

1124 Glenn L. Martin Hall (formerly Engineering Classroom Building), 301-405-3855

## General Regulations for the B.S. Engineering Degree

All undergraduates in engineering will typically select their major field sponsoring department by the end of their second year regardless of whether they plan to proceed to a designated or an undesignated degree. A student wishing to elect the B.S. Engineering degree program may do so at

any time following the completion of the sophomore year, or a minimum of 50 earned credits towards any engineering degree, and at least one semester prior to the time the student expects to receive the baccalaureate. As soon as the student elects to seek a B.S. Engineering degree, the student's curriculum planning, guidance, and counseling will be the responsibility of the "B.S. Engineering Degree Program Advisor" in the primary field department. The student must file an "Application for Admission to Candidacy for the Degree of Bachelor of Science in Engineering" with the Office of Undergraduate Advising and Academic Support of the A. James Clark School of Engineering. The candidacy form must be approved by the chair of the primary field department, the primary engineering, and the secondary field advisors and the college faculty committee on "B.S. Engineering Degree Programs." This committee has the responsibility for implementing all approved policies pertaining to this program and reviewing and acting on the candidacy forms filed by the student.

Specific university and school academic regulations apply to this B.S. Engineering degree program in the same manner as they apply to the conventional designated degree programs. For example, the academic regulations of the university apply and the school requirement of a 2.0 GPA or better and a grade of C or better in all engineering courses. For the purpose of implementation of such academic rules, the credits in the primary engineering field and the credits in the secondary field are considered to count as the "major" for such academic purposes.

## Options of the "B.S. Engineering" Program

The B.S. Engineering Program has the following objectives:

- To provide the basic professional education and flexibility to tailor ABET accredited engineering program (Engineering Option) to those students who plan to have a career in or continue their engineering studies at the graduate level in one of the many interdisciplinary fields of engineering such as biotechnology, nanotechnology, environmental, robotics, systems engineering, and many others.
- To prepare students who do not wish to follow a professional career in a traditional engineering field but rather plan to use the breadth and depth of their engineering education as preparation for entry into post-baccalaureate study or careers in such fields as medicine, law, or business administration.
- To prepare those students who do not intend to pursue a career in a traditional engineering field but rather want to use a more broad engineering curriculum in order to gain a professional auxiliary or management position in an engineering-related industry.
- The program is designed to give the student maximum flexibility to design an academic program which is specific to the student's career goals. To accomplish these objectives, the program has two optional paths: the Engineering Option and the Applied Science Option.

**The engineering option**, which is ABET-accredited, should be particularly attractive to those students contemplating graduate study or professional employment in the interdisciplinary engineering fields, such as environmental engineering, bio-engineering, bio-medical, systems and control engineering, and manufacturing engineering, or for preparatory entry into a variety of newer or interdisciplinary areas of graduate study. For example, a student contemplating graduate work in environmental engineering might combine chemical and civil engineering for his or her program; a student interested in systems and control engineering graduate work might combine electrical engineering with aerospace, chemical, or mechanical engineering.

**The applied science option**, which is not ABET-accredited, should be particularly attractive to those students who do not plan to pursue a professional engineering career but wish to use the rational and developmental abilities fostered by an engineering education as a means of furthering career objectives. Graduates of the applied science option may aspire to graduate work and an ultimate career in a field of science, law, medicine, business, or a variety of other attractive opportunities which build on a combination of engineering and a field of science. Entrance requirements for law and medical schools can be met readily under the format of this program. In the applied science program, any field in the university in which the student may earn a B.S. degree is an acceptable secondary science field, thus affording the student a maximum flexibility of choice for personal career planning.

# 114 English Language and Literature

## Minimum Requirements

Listed below are the minimum requirements for the B.S. Engineering degree with either an engineering option or an applied science option. Students completing either option of the B.S. Engineering degree are required to complete the freshman and sophomore requirements in the chosen primary engineering field and the general education requirements as outlined by the university and the Clark School of Engineering. The student, thus, does not make a decision whether to take the designated or the undesignated degree in an engineering field until the beginning of the junior year. In fact, the student can probably delay the decision until the spring term of the junior year with little or no sacrifice, thus affording ample time for decision-making. Either program may be taken on the regular four-year format or under the Maryland Plan for Cooperative Engineering Education.

## Junior-Senior Year Requirements

### Engineering Option

|  |           |
|--|-----------|
| Mathematics/Physical Science Requirements <sup>4</sup> | 3         |
| Engineering Elective <sup>2,4</sup>                    | 3         |
| Primary Field <sup>1,7</sup>                           | 24        |
| Secondary Field <sup>1,7</sup>                         | 12        |
| Major Field <b>or</b> related electives <sup>4</sup>   | 3         |
| Approved electives <sup>3,4</sup>                      | 6         |
| <b>Total credits</b>                                   | <b>51</b> |

### Applied Science Option

|  |           |
|--|-----------|
| Mathematics/Physical Science Requirements <sup>4</sup> | 3         |
| Engineering Sciences <sup>2,4</sup>                    | 3         |
| Primary Field <sup>1</sup>                             | 18        |
| Secondary Field <sup>1</sup>                           | 12        |
| Major Field <b>or</b> related electives <sup>4</sup>   | 3         |
| Approved electives <sup>4,6</sup>                      | 9         |
| Senior research project <sup>5</sup>                   | 3         |
| <b>Total credits</b>                                   | <b>51</b> |

Engineering fields of concentration available under the B.S. Engineering program as primary field within either the engineering option or the applied science option are: aerospace engineering, biological resources engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, fire protection engineering, materials engineering and mechanical engineering. All engineering fields of concentration may be used as a secondary field within the engineering option.

<sup>1</sup>All courses used to fulfill the primary and secondary fields of concentration must be at the 300- and 400-level.

<sup>2</sup>Engineering courses are courses offered by the Clark School of Engineering which have a prefix beginning with EN (e.g., ENES, ENME, ENEE, etc.). These elective courses may be in a student's primary or secondary field of concentration.

<sup>3</sup>Approved electives must be technical (mathematics, physical sciences, or engineering sciences) but may not be in the primary or secondary fields of concentration.

<sup>4</sup>At least 50 percent of the elective courses (mathematics, physical sciences, engineering sciences, approved electives) must be at the 300- or 400-level.

<sup>5</sup>Students are required to complete 15 credits of approved electives which include a senior-level project or research assignment relating the engineering and science fields of concentration, unless specifically excused.

<sup>6</sup>In the applied science option, the approved electives should be selected to strengthen the student's program consistent with career objectives. Courses in the primary or secondary fields of concentration may be used to satisfy the approved electives requirement.

For the Engineering Option, the student's program must fulfill all ABET requirements, including sufficient credits in mathematics and basic sciences. Additionally, the program must contain the proper design component, as specified by ABET, which is, at a minimum, the capstone design course in either the student's primary or secondary engineering field. It is the responsibility of the student and his/her advisors to ensure that the requirements are satisfied by the appropriate selection of courses in the primary and secondary fields of concentration.

## ENGLISH LANGUAGE AND LITERATURE (ENGL)

### College of Arts and Humanities

3101 Susquehanna Hall (SQH), 301-405-3809

[www.english.umd.edu](http://www.english.umd.edu)

Undergraduate Advisors: 2115 Susquehanna Hall, 301-405-3825

Freshman English Office: 2101 Susquehanna Hall, 301-405-3771

Professional Writing Program: 3119 Susquehanna Hall, 301-405-3762

Professor and Chair: Caramello

Professors: Auchard, Auerbach, Barry, Bryer\*, Caramello, Caretta, Cartwright, Coletti, Collier, Collins, Cross, Donawerth\*, Fahnestock, Flieger, Fraistat, Grossman, D. Hamilton, Kauffman\*, Leinwand, Leonardi, Levine, Mack, Norman, Pearson, C. Peterson, Plumly††, Smith, Washington, Wyatt\* Associate Professors: Bauer, Cate, Chuh, Cohen, Coleman, G. Hamilton, Kleine, Lindemann, Logan, Loizeaux, Marcuse, Moser, Norman, Ray, Richardson, Rosenthal, Van Egmond, Wang

Assistant Professors: Arnold, Israel, Jarrett, Jellen, Kirschenbaum, Mallios, Rudy, Weiner

Lecturers: Miller, Ryan

Professors Emeriti: Beauchamp, Coogan, Freedman, Fry, Hammond, Howard, Isaacs, Jellema, Lawson, Lutwack, Miller, Myers, Panichas, Salamanca, Trousdale, Vitzhum, Whittemore, Winton

††Distinguished University Professor

\*Distinguished Scholar Teacher

### Advising

Advising is available throughout the year in 2115 Susquehanna Hall. Departmental advising is mandatory for all majors each semester. Students should check Testudo for their registration date and schedule an advising appointment at least one week in advance. Advising appointments can be made by calling 301-405-3825 or by visiting the English Undergraduate Office in 2115 Susquehanna Hall.

### The Major

The English major has three parts: English 301, Group I Requirements, and Group II Requirements. The **Group I Requirements** assure that students have a broad foundation in literary history and become aware of the questions an inquiring reader might ask of a text. The **Group II Requirements** offer students the opportunity to explore in greater depth both literary periods and literary themes that cross periods and to develop skills in reading, criticism, writing, and research.

1. The English major requires 36 credits beyond the university Fundamental Studies requirements in ENGL 101 and ENGL 391-95. At least 30 of the 36 credits for the major must be taken at the 300- or 400- level, and at least 12 credits must be at the 400-level.
2. A "C" or better is required in each of the courses making up the 36 credits of the major.
3. Three credits of ENGL 388 (Internship courses) may be included in the 36 credits.
4. Only 6 credits of ENGL 429 (Independent Study) may be included in the 36 credits.
5. Only 9 credits of ENGL 379 (Special Topics courses) may be included in the 36 credits.
6. Only 9 credits of ENGL 428 (seminars) may be included in the 36 credits.

### The English Major Requires 36-credits, Distributed As Follows:

#### ENGLISH 301: Critical Methods in the Study of Literature (3 credits)

English Majors must take ENGL 301 before they take other 300- or 400-level English courses. We recommend it be taken during the sophomore year. In special cases, students may be permitted to take ENGL 301 while they are taking their first upper level course.

#### GROUP I REQUIREMENTS (9 credits)

To be taken at the 200- or 300-level.

1. One course (3 credits) in literary and cultural history.
2. One course (3 credits) in literary, linguistic, or rhetorical analysis.
3. One course (3 credits) in the literature of African-Americans, peoples of color, women, and/or lesbians, gays, and bisexuals.

#### GROUP II REQUIREMENTS \* (24 credits)

To be taken at the 300- and 400-level

1. Two courses (6 credits) focused on writing before 1800.
2. One course (3 credits) in Modern British, Anglophone, and/or Postcolonial Writing (after 1800).
3. One course (3 credits) in American, African American, and/or U.S. Ethnic Writing.

4. Four English focus courses (12 credits total), which may follow a designated pathway if the student desires. Students may also count one 300- or 400-level literature course in a literary tradition other than English, either in the original language or in translation, as a Group II elective.

\*At least 12 credits must be at the 400-level. No more than 6 credits of 200-level courses may be applied toward the major and can only be used to satisfy Group I requirements.

## The Minor

The English minor has three parts: English 301, Group I courses, and Group II courses. The Group I courses assure that students acquire a broad foundation in literary history and critical strategies. The Group II courses offer students the opportunity to explore in greater depth literary periods and literary themes that cross periods. In these courses, students will develop skills in reading, criticism, writing, and research.

## The English Minor Requires 21 Credits Distributed As Follows:

### ENGLISH 301: Critical Methods in the Study of Literature (3 credits)

English minors must take ENGL 301 before they take other 300- or 400-level English courses. We strongly recommend that students take ENGL 301 during the sophomore year.

### GROUP I COURSES (6 credits)

To be taken at the 200- or 300-level

English minors must take two courses from two different categories of the Group 1 listings (6 credits). These courses will be taken at the 200- or 300-level. The three categories in Group 1 are:

1. One course (3 credits) in literary and cultural history.
2. One course (3 credits) literary, linguistic, or rhetorical analysis.
3. One course (3 credits) in the Literature of African Americans, peoples of color, women, and/or lesbians, gays, and bisexuals.

### GROUP II COURSES\* (12 credits)

To be taken at the 300- and 400-level

English minors must take four courses (12 credits) from the Group 2 listings. At least two of these courses must be taken at the 400 level. These four courses should be distributed in the following ways:

1. Two courses (6 credits) on writing before 1800.
2. One course (3 credits) in Modern British, Anglophone, and/or Postcolonial writing (after 1800).
3. One course (3 credits) in American, African American, and/or U.S. Ethnic writing.

\*One (and only one) Group II distributional requirement may be satisfied with any English course at the 300 or 400 level, other than ENGL 386 and ENGL 388.

## English and English Education Double Major

In conjunction with the College of Education, the English Department offers a special 125-credit program for students wishing to double major in English and English Education, allowing them to earn a certificate to teach English at the secondary level. For a list of requirements, contact the Office of Undergraduate Studies (2115 SQH, 301-405-3825).

## Honors

The English Department offers an extensive Honors Program, primarily for majors but open to others with the approval of the departmental Honors Committee. Interested students should ask for detailed information from an English Department advisor as early as possible in their college careers.

## The Writing Center

The Writing Center, 0125 Taliaferro, 301-405-3785, provides free tutorial assistance to students with writing assignments. English 101 students generally work with student tutors. English 391/2/3/4/5 students usually work with tutors who are retired professionals. Appointments are recommended, but walk-ins are welcome based on availability of tutors. Students, faculty, and staff with questions about punctuation, sentence structure, word choice, or documentation can call the Writing Center's Grammar Hotline at 301-405-3787.

## ENTOMOLOGY (ENTM)

### College of Chemical and Life Sciences

4112 Plant Sciences Bldg., 301-405-3911  
www.entm.umd.edu

Professor and Chair: Mitter

Professors: Barbosa, Bottrell, Brown, Denno, Dively, Ma, Mitter, Palmer, Raupp, St. Leger, Thorne, Via

Associate Professors: Armstrong, Hawthorne, Lamp, Nelson, Pick, Shultz

Assistant Professors: Neel, Shrewsbury

Instructor: Kent

Professors Emeriti: Bickley, Davidson, Harrison, Hellman, Jones, Linduska,

Menzer, Messersmith, Steinhauer, Wood

Director of Graduate Studies: Hawthorne

Director of Undergraduate Studies: Kent

The Department of Entomology participates in teaching and advising in the interdepartmental undergraduate Biological Sciences Program (see separate listing). Faculty members pursue research ranging from molecular to ecosystem levels of organization in insects, and the organisms with which insects interact.

## The Major

Undergraduate students interested in Entomology should declare the General Biology specialization within the Biological Sciences Program (see separate listing). Students should also contact the Entomology Director of Undergraduate Studies for information on pursuing a career in Entomology.

## Requirements for Specialization

See the Biological Sciences Program listing in this catalog, or contact the Entomology Director of Undergraduate Studies for the General Biology requirements.

## Advising

Advising is mandatory in the Biological Sciences Program. The Department of Entomology faculty coordinate and advise students in the General Biology (GENB) specialization. Contact the Department of Entomology for information about advising or to schedule an appointment with the Entomology Director of Undergraduate Studies. For advising on other Biological Sciences Program specializations, see the Biological Sciences Program listing in this catalog.

## Research Experience

Students in the Biological Sciences Program can engage in research with Entomology faculty either in departmental or off-campus facilities. Contact the Entomology Director of Undergraduate Studies for more information.

## Honors

The Entomology Honors Program provides the opportunity for highly motivated and academically qualified undergraduates to engage in original, independent research under the guidance of an Entomology faculty mentor. The program is open to all Biological Science Program students who have (1) junior standing (including at least twelve credits within the major), (2) a minimum overall GPA and major courses GPA of 3.2, and (3) a Department of Entomology faculty member who has agreed to serve as their mentor. Contact the Entomology Honors Director, Dr. William Lamp (lamp@umd.edu) for more information. Participants in the Entomology Honors Program are eligible for the Ernest N. Cory Undergraduate Scholarship.

Course Code: ENTM

## ENVIRONMENTAL SCIENCE AND POLICY PROGRAM (ENSP)

0102 Symons Hall, 301-405-8571

E-mail: bj5@umail.umd.edu or jbrown@deans.umd.edu

www.ensp.umd.edu

Director: James

Associate Director: Whittemore

Environmental Science and Policy is a broadly multidisciplinary major, drawing courses and faculty from 20 departments and four Colleges (Agriculture and Natural Resources; Behavioral and Social Sciences; Computer, Mathematical, and Physical Sciences; and Chemical and Life Sciences). There are 11 areas of concentration within the major, most of which are also cross-disciplinary. Students will choose a particular area of concentration and will be assigned an advisor from among the faculty who are responsible for the particular area. Students will have the opportunity to change area of concentration from that originally selected as they learn about the diversity of the major and its offerings. The B.S. degree earned will be in Environmental Science and Policy and in the area of concentration chosen. For administrative purposes, the students will be associated with the Colleges of their academic advisors.



## 116 Family Studies

### The Major

Environmental Science and Policy students will take a core of 10 courses, including 9 lower-division courses chosen from restricted lists and a Capstone course required of all majors during their senior year, and upper-division courses defined by the area of concentration. After accounting for prerequisites, CORE courses, and upper-division requirements, any area of concentration may be completed while allowing approximately 24 hours of free electives in a normal 120-hour program leading to the B.S. degree. Some areas of concentration require an internship, and students will be encouraged to pursue practical work, study abroad, and volunteer opportunities as part of their undergraduate programs.

### Requirements for Major

#### ENSP CORE

1. Two introductory courses and three credits each semester, emphasizing Environmental Science in ENSP 101 and Environmental Policy in ENSP 102.
2. At least one course each from five of the following six groups: a) Biology (BSCI 106); b) Chemistry (CHEM 131/132); c) Earth Sciences GEOL 120/110, GEOL 100/110, GEOG 201/211, NRSC 200, AOSC 200); d) Economics (AREC 240, ECON 200); e) Geography (GEOG 100, GEOG 170, GEOG 202); f) Government & Politics (GVPT 273, AREC 332).
3. One semester of Calculus (MATH 140 or MATH 220)
4. One semester of Statistics (BIOM 301, ECON 321, PSYC 200, SOCY 201, STAT 400)
5. The Capstone course (ENSP 400 in the senior year)

### Areas of Concentration

Biodiversity and Conservation Biology; Earth Surface Processes; Environment and Agriculture; Environmental Economics; Environmental Politics and Policy; Environmental Restoration and Management; Land Use; Society and Environmental Issues; Soil, Water and Land Resources; Wildlife Resources and Conservation. *Changes in concentrations are under review. Students should consult the program for updated information.*

### Grading Policy

Students who entered the Environmental Science and Policy Program in spring 2002, and thereafter, are required to earn grades of C or higher in all courses taken within the ENSP core, in all required courses, and restricted electives of the selected area of concentration.

### Advising

Advising is mandatory each semester. Before registering, students should contact the Associate Director of ENSP to discuss the program requirements and options, and to explore their interests in possible areas of concentration.

Course Code: ENSP

## FAMILY STUDIES (FMST)

### College of Health and Human Performance

1204 Marie Mount Hall, 301-405-3672  
[www.umd.edu/fmst](http://www.umd.edu/fmst)

Professor and Chair: Koblinsky  
Professors: Anderson, Epstein, Hofferth  
Associate Professors: Braun, Leslie, Mokhtari, Myricks, Randolph, Rubin, Walker, Wallen  
Assistant Professors: Kim, La Taillade, Roy, Walker  
Instructors: Werlinich  
Lecturer: Davis  
Undergraduate Coordinator: Smith

### The Major

The major in Family Studies emphasizes an understanding of the family as the primary social institution linking individuals to their world. The program has three interrelated foci: 1) the family as a unique and dynamic social unit, 2) individual and family development throughout the life span, and 3) the relationship of the family to its larger socio-cultural, historical, political and economic context. Courses examine family dynamics, ethnic families,

family crises, family violence, family policy, legal problems, family economics, family finance and human services.

Students study prevention and intervention strategies for combating family problems. The reciprocal relationships between families and the social policies, practices and management of institutions and organizations are examined. The curriculum prepares students for careers in human services, human resource management, family life education, public policy and related positions emphasizing the family. Opportunities exist in public, private and non-profit agencies and institutions working with family members, entire family units or family issues. Graduates are also prepared for graduate study in the family sciences, family therapy, human services administration, health, law, social work, human resource management and other social and behavioral science disciplines and professions.

### Curriculum

**(a) Major subject area: A grade of C or better is required in these courses.**

FMST 302 Research Methods (3)  
FMST 330 Family Theories and Patterns (3)  
FMST 332 Children in Families (3)  
FMST 381 Poverty, Affluence, and Families (3)  
FMST 383 Delivery of Human Services to Families (3)  
FMST 432 Intergenerational Aspects of Family Living (3)  
FMST 477 Internship and Analysis in Family Studies (3)  
FMST 487 Legal Aspects of Family Problems (3)

**(b) Six additional departmental credits must be selected from any other FMST courses, with the exception of independent study (FMST 399, FMST 498) and field work (FMST 386, FMST 387). A grade of C or better is required. FMST 105 and FMST 298F cannot be used to meet this requirement unless they are taken before the student completes 56 credits.**

**(c) Additional courses. Required of all majors. All students must earn a grade of C or better in all courses applied toward completion of the major.**

FMST 290 Family Economics (3)  
or ECON 200 Principles of Microeconomics (4)  
or ECON 201 Principles of Macroeconomics (4)  
EDMS 451 Introduction to Educational Statistics (3)  
or STAT 100 Elementary Statistics and Probability (3)  
SOCY 100 Introduction to Sociology (3)  
or SOCY 105 Introduction to Contemporary Social Problems (3)  
PSYC 100 Introduction to Psychology (3)  
COMM 100 Foundations of Speech Communication (3)  
or COMM 107 Speech Communication: Principles and Practices (3)  
or COMM 125 Introduction to Interpersonal Communication (3)

Course Code: FMST

## FINANCE

For information, consult the Robert H. Smith School of Business entry in chapter 6.

## FIRE PROTECTION ENGINEERING (ENFP)

### A. James Clark School of Engineering

0151 Martin Hall, 301-405-3992  
[www.enfp.umd.edu](http://www.enfp.umd.edu)

Professor and Chair: DiMarzo  
Associate Chair: Milke  
Professors: Brannigan, Quintiere  
Associate Professors: Milke, Mowrer, Trouve  
Assistant Professors: Marshall, Sunderland  
Lecturers (part-time): Gagnon, Simone  
Emeriti: Bryan, Spivack  
Adjunct Professors: Roby, Toren

### The Major

Fire Protection Engineering is concerned with the applications of scientific and technical principles to the growth, mitigation, and suppression of fire. This includes the effects of fire on people, on structures, on commodities, and on operations. The identification of fire hazards and their risk, relative to the cost of protection, is an important aspect of fire safety design.

The educational objectives of the undergraduate program in Fire Protection Engineering are to produce graduates who:

1. have the technical knowledge and skills needed to practice fire protection engineering in a variety of modern professional settings;
2. have the basic competencies needed to pursue advanced studies in fire protection engineering and related fields;
3. have the ability to understand and communicate the societal, environmental, economic and safety implications of engineering decisions;
4. are prepared to attain professional certification and licensure; and
5. appreciate the need to maintain continual professional competency and to practice ethically.

The practice of fire protection engineering has developed from the implementation and interpretation of codes and standards directed at fire safety. These safety codes contain technical information and prescriptions derived from experience and research. Research has also led to quantitative methods to assess aspects of fire and fire safety. Thus, fire protection engineers need to be versed in the current technical requirements for fire safety and in the scientific principles that underlie fire and its interactions.

The fire protection engineering student receives a fundamental engineering education involving the subjects of mathematics, physics, and chemistry. The program builds on other core engineering subjects of materials, fluid mechanics, thermodynamics and heat transfer with emphasis on principles and phenomena related to fire. Fluid mechanics includes applications to sprinkler design, suppression systems, and smoke movement. Heat transfer introduces the student to principles of evaporation for liquid fuels. The subject of combustion is introduced involving premixed and diffusion flames, ignition and flame spread, and burning processes. Laboratory experience is gained by being exposed to standard fire tests and measurements. Design procedures are emphasized for systems involving suppression, detection, alarm, and building safety requirements. The background and application of codes and standards are studied to prepare the student for practice in the field. System concepts of fire safety and methods of analysis are presented. A senior design or research project is required which gives the student an opportunity to explore issues beyond the normal classroom environment.

In general, the curriculum is designed to give the student a grounding in the science and practice of fire safety. The field touches on many disciplines and its scientific basis is expanding. It is an engineering discipline that is still growing, and offers a variety of excellent career opportunities. These cover a wide spectrum involving safety assessment reviews, hazards analysis and research, loss prevention and regulatory issues.

## Requirements for Major

| <b>Freshman Year</b>                        | <b>Fall</b> | <b>Spring</b> |
|---|-------------|---------------|
| CORE Program Requirements (Incl ENGL 101)   | 3           | 6             |
| CHEM 135 General Chemistry for Engineers    | 3           |               |
| MATH 140, 141 Analysis I, II                | 4           | 4             |
| ENES 100 Introduction to Engineering Design | 3           |               |
| ENES 102 Statics                            |             | 3             |
| PHYS 161 General Physics I                  |             | 3             |
| ENFP 108 (optional) Hot Topics in Fire      |             |               |
| <b>Total</b>                                | <b>13</b>   | <b>16</b>     |

### Sophomore Year

|  |           |           |
|--|-----------|-----------|
| CORE Requirements (incl. Diversity Courses)          | 3         | 3         |
| MATH 240 Linear Algebra <b>or</b>                    | 4         |           |
| MATH 241 Analysis III                                |           |           |
| MATH 246 Differential Equations                      |           | 3         |
| PHYS 260, 270 General Physics II, III                | 4         | 4         |
| ENES 221, 220 Dynamics/Mechanics of Materials        | 3         | 3         |
| ENFP 251 Introduction to Fire Protection Engineering | 3         |           |
| ENFP 255 Fire Alarm and Special Hazards Design       |           | 3         |
| <b>Total</b>   | <b>17</b> | <b>16</b> |

### Junior Year

|   |           |           |
|---|-----------|-----------|
| CORE Requirements                                   | 3         | 3         |
| ENME 320 Thermodynamics*                            | 3         |           |
| ENFP 300 Fire Protection Fluid Mechanics            | 3         |           |
| ENFP 310 Water Based Fire Protection Systems Design |           | 3         |
| ENFP 312 Heat and Mass Transfer                     |           | 3         |
| ENFP 320 Fire Assessment Methods and Laboratory     | 4         |           |
| ENFP 350 Professional Development Seminar           |           | 1         |
| General Elective - see advisor for details          |           | 3         |
| Approved Electives                                  |           |           |
| (STAT, ENFP, ENES, ENXX)**1                         | 3         | 3         |
| <b>Total</b>  | <b>16</b> | <b>16</b> |

### Senior Year

|  |           |            |
|--|-----------|------------|
| CORE Requirements                        | 3         |            |
| ENFP 405 Structural Fire Protection      |           | 3          |
| ENFP 411 Fire Protection Hazard Analysis |           | 3          |
| ENFP 415 Fire Dynamics                   | 3         |            |
| ENFP 416 Problem Synthesis and Design    |           | 3          |
| ENFP 421 Life Safety and Risk Analysis   | 3         |            |
| ENFP 425 Fire Modelling                  | 3         |            |
| Approved Electives                       |           |            |
| (STAT, ENFP, ENES, ENXX)**1              | 3         | 3          |
| <b>Total</b>                             | <b>15</b> | <b>12</b>  |
| <b>Total Credit Hours</b>                |           | <b>122</b> |

\*ENME 320 is for non-ME majors. ENME 232 is usually for ME majors, but may be substituted w/permission.

\*\*At least 3 credits (1 course) of approved electives must be in ENFP.

3 credits (1 course) must also either be a statistics, mathematics or applied mathematics course.

An additional chemistry course(s) in organic, analytical or physical chemistry is recommended.

See the department for an additional listing of approved electives.

## Admission

Admission requirements are identical to those set by the A. James Clark School of Engineering. (See A. James Clark School of Engineering section in chapter 6.)

## Advising

Mandatory advising by department faculty is required of all students every semester. Students schedule their advising appointments in the department Office, 3rd floor of J.M. Patterson.

## Fieldwork and Internship Opportunities

Part-time and summer professional experience opportunities and paid internship information is available in the department Office, 3rd floor, J.M. Patterson. See your advisor or the Undergraduate Chair: J. Milke, 301-405-3992.

## Financial Assistance

Numerous scholarships and grants are available to students in the department from organizational and corporate sponsors. Information is available on eligibility, financial terms and retention criteria in the department Office. The majority of the scholarships are for junior and senior students, but some scholarships are available for first- and second-year students. Also refer to our web site at [www.enfp.umd.edu](http://www.enfp.umd.edu).

## Honors and Awards

Academic achievement awards are sponsored by the department and the student professional-honor societies. These awards are presented at the annual A. James Clark School of Engineering Honors Convocation. Eligibility criteria for these awards are available in the department Office. Qualified students in the department are eligible for participation in the A. James Clark School of Engineering honors program.

## Student Organizations

The departmental honor society, Salamander, is open to academically eligible junior and senior students. The University of Maryland student chapter of the Society of Fire Protection Engineers is the professional society for all interested students in the department. Student membership in the National Fire Protection Association is available too. Information on these organizations may be obtained from current members in the student lounge, 3rd floor, J.M. Patterson.

Course code: ENFP

## FOOD SCIENCE PROGRAM

Please see entry for Nutrition and Food Science later in this chapter.

## FRENCH AND ITALIAN LANGUAGES AND LITERATURES (FRIT)

For more information, consult School of Languages, Literatures, and Cultures elsewhere in this chapter.

## 118 Geography

### GEOGRAPHY (GEOG)

#### College of Behavioral and Social Sciences

2181 LeFrak Hall, 301-405-4050

[www.geog.umd.edu](http://www.geog.umd.edu)

Chair: Townshend

Associate Chair: Cirrincione

Professors: DeFries\* (ESSIC), Dubayah, Goward, Justice, Kasischke, Kearney, Prince, Townshend

Associate Professors: Brodsky, Cirrincione\* (Curriculum and Instruction), Geores, Liang

Assistant Professors: Dibble, Kleidon, Zhou

Lecturers: Eney, Kinerney, Zlatic

Professors Emeritus: Harper, Thompson, Wiedel

Adjunct Faculty: Althausen, Goetz, Izzauralde, Morissette, Rosenberg, Townsend, Tucker, Walthall, Williams

\*Joint appointment with unit indicated.

#### The Major

The Department of Geography offers programs of study leading to the Bachelor of Science (B.S.) degree. Many students find that the multiple perspectives of geography form an excellent base for a liberal arts education. The abilities to write clearly and to synthesize information and concepts are valued highly in geographical education and practice. Students of geography must master substantive knowledge either in the physical/natural sciences or in the behavioral/social sciences in addition to methodological knowledge. Some advanced geography courses, such as geomorphology and climatology are physical science oriented; economic geography, urban systems, and population geography focus on the social sciences, while environmental studies, ecology, and the geography of human dimensions of global change combine the two. International interests are best pursued with complementary study in foreign languages and area studies.

The central question in geographical study is "where?" Geographers research locational questions of the natural environment, of social and economic systems, and of past human activity on the land. Students of geography must master a variety of techniques that are useful in locational analysis, including computer applications and mapping, map making or cartography, air-photo interpretation and remote sensing, field observation, statistical analysis, and mathematical modelling.

Increasingly, geographers apply their combined methodological and substantive knowledge towards the solution of society's problems. Some graduates find geography to be an excellent background for careers in defense and intelligence, journalism, law, travel and tourism, the nonprofit sector, and business and management. Most professional career positions in geography require graduate training. Many geographers take positions in scientific research, planning, management and policy analysis for both government and private agencies.

#### Major Requirements Including Program Options

Within any of the specializations available in the geography major program it is possible for students to adjust their programs to fit their individual interests. The geography major totals 35 semester hours. In addition to the 35 semester hours, the geography major is required to take an additional 15 semester hours of supporting course work outside of the department. The hours can be either in one department or in an area of specialization. An area of specialization requires that a written program of courses be reviewed and placed on file by the department advisor. See Advising Office, LeFrak 2108, 301-405-8085, e-mail [geog-advise@umd.edu](mailto:geog-advise@umd.edu), web page: [www.geog.umd.edu](http://www.geog.umd.edu). Supporting courses generally are related to the area of specialty in geography. The pass-fail option is not applicable to major or supporting courses. A minimum grade of C in each course is required for major and supporting courses.

The required courses for geography majors are as follows:

|  | Semester<br>Credit Hours |
|--|--------------------------|
| Primary Courses (GEOG 201, 202, 211, 212)                    | 8                        |
| An upper-level physical geography course                     | 3                        |
| An upper-level human geography course                        | 3                        |
| An upper-level geographic technique course                   | 3                        |
| Upper-level geography electives                              | 15                       |
| Quantitative Methods or Statistics<br>(e.g. GEOG 305 or 306) | 3                        |
| <b>Total</b>   | <b>35</b>                |

#### Geography Primary Courses

The following four courses provide the initial base of the Geography Program:

|  |   |
|--|---|
| GEOG 201 Geography of Environmental Systems            | 3 |
| GEOG 202 The World in Cultural Perspective             | 3 |
| GEOG 211 Geography of Environmental Systems Laboratory | 1 |
| GEOG 212 The World in Cultural Perspective Lab         | 1 |

#### Upper-Level Elective

At least one upper-level course each in physical geography, human geography, and geographic technique is required regardless of the speciality of the individual student's program. These courses build on the initial base provided by the Primary Courses, and also serve as the basis for selection of upper-level geography courses.

#### Suggested Program of Study for Geography

|  | Semester<br>Credit Hours |
|--|--------------------------|
| <b>Freshman Year</b>   |                          |
| ENGL 101 Introduction to Writing   | 3                        |
| MATH 110 Elementary Mathematical Models<br>or MATH 115 Precalculus   | 3                        |
| University CORE Distributive Studies<br>(To be chosen from the three categories of Humanities-Arts,<br>Math-Sciences, and Social Sciences) | 24                       |
| <b>Sophomore Year</b>  |                          |
| University CORE Distributive Studies<br>(To be chosen from Math-Sciences lecture-laboratory courses)                                       | 4                        |
| GEOG 201 Geography of Environmental Systems  | 3                        |
| GEOG 202 The World in Cultural Perspective   | 3                        |
| GEOG 211 Geography of Environmental Systems Lab  | 1                        |
| GEOG 212 The World in Cultural Perspective Lab   | 1                        |
| Quantitative Methods (GEOG 305 or 306)   | 3                        |
| Electives  | 15                       |
| <b>Junior Year</b>   |                          |
| ENGL 391   | 3                        |
| CORE Advanced Studies  | 3                        |
| Advanced Human Geography   | 3                        |
| Advanced Physical Geography  | 3                        |
| Advanced Technique Geography   | 3                        |
| Geography Upper-Level Elective   | 3                        |
| Electives  | 12                       |
| <b>Senior Year</b>   |                          |
| Geography Upper-Level Electives  | 12                       |
| Electives  | 18                       |
| <b>Total</b>   | <b>120</b>               |

#### Introduction to Geography

The 100-level geography courses are general education courses for persons who have had no previous contact with the discipline in high school or for persons planning to take only one course in geography. They provide general overviews of the field or in one of its major topics. Credit for these courses is not applied to the major.

#### Related Programs

##### Geographic Information Science/Computer Cartography Program

The Geography Department offers an important area of specialization: GIS and Computer Cartography. The Bachelor of Science degree program in Geographic Information Science and Computer Cartography is designed to give students the technical skills needed to acquire, manage and analyze very large amounts of geographic data. Students will get extensive computer training in digital processing of remote sensing observations and cartographic vector data, spatial analysis, and the display of information products. Almost everything we do involves geographic information, from deciding where to live and travel, to environmental monitoring and urban planning. Influenced by computer technology, the academic disciplines of geographic information science such as remote sensing, geographic information systems (GIS), and computer cartography have evolved dramatically in the past few decades. Remote sensing is the science of obtaining geographic information from aircraft and satellites. GIS technology manages and analyzes different forms of digital geographic data, and this field has been growing at an extraordinary rate. Computer cartography has revolutionized traditional cartography to vastly

improve map making and visualization of geographic information in a multimedia environment.

Students concentrating in GIS/Cartography must take the Geography Primary courses, totalling eight hours: one upper-level course in physical geography, and one in human geography plus six hours of systematic electives, totalling 12 hours; and Cartography/Geographic technique courses, totalling 15 hours. Supporting area courses must be taken from a list provided by the department. All math programs should be approved by a departmental advisor.

### Geography and Social Studies Education Double Major

In conjunction with the Department of Curriculum and Instruction, the Geography Department offers a special 121 credit hours program for students wishing to double major in Geography and Social Studies Education - Geography Concentration, allowing them to teach geography at the secondary level. Early examination of requirements is encouraged to reduce the number of additional hours required. In addition to the Geography Departments required credits, the program requires 28 credit hours of course work in history and the social sciences. For a list of requirements, contact the Geography Undergraduate Advising Office. Requirements are also listed under the Department of Curriculum and Instruction Social Studies Education - Geography Concentration double major option.

### Minor

#### Minor in Geographic Information Science (GIS)

Total of 15/16 credit hours. See undergraduate advising office for details, LeFrak Hall 2108, 301-405-4073. Choose GEOG 201/211 or GEOG 202 (3/4 credits). Required: GEOG 398Q, GEOG 371, GEOG 372, GEOG 373 (12 credits).

### Internship Opportunities

The department offers a one-semester internship program for undergraduates (GEOG 384 and 385). The goal of the program is to enhance undergraduates' intellectual growth and career opportunities. The internship provides an opportunity for the students to expand their understanding of the field by linking the theoretical aspects of geography acquired in the classroom to the applied aspects operating in a practice situation. The internship program is open only to geography juniors and seniors. All interns must have completed the following prerequisites: GEOG 201/211, 202/212, 305 or its equivalent, and the upper-level writing requirement. An application form from the undergraduate geography advisor must be submitted one semester before the internship is desired. See undergraduate advising office, 2108 LeFrak Hall, 301-405-4073 for information.

### Honors

For information on the geography honors program, contact the undergraduate advisor.

### Student Organizations

Gamma Theta Upsilon, the geography undergraduate organization, operates a program of student-sponsored talks and field trips.

Course Code: GEOG

## GEOLOGY (GEOL)

### College of Computer, Mathematical and Physical Sciences

1115 Geology Building, 301-405-4365

[www.geol.umd.edu](http://www.geol.umd.edu)

Professor and Chair: Brown

Professors: Candela, Chang (Emeritus), Rudnick, Walker, Wylie†

Associate Professors: Kaufman, McDonough, Prestegaard, Stifel (Emeritus)

Assistant Professor: Farquhar

Adjunct Professor: Zen

Assistant Research Scientists: Piccoli, Puchtel

Lecturers: Holtz, Merck, Peamston, Penniston-Dorland

Affiliate Faculty: Busalacchi, Fahnestock

†Distinguished Scholar Teacher

### The Major

Geology is the science of the Earth. In its broadest sense, geology concerns itself with planetary formation and subsequent modification, with emphasis on the study of planet Earth. Geologists study Earth's internal and surficial structure and materials, the chemical and physical processes acting within and on the Earth, and utilize the principles of mathematics, physics, chemistry, and biology to understand our planet and its environments.

Geological Studies encompass all the physical, chemical, and biological aspects of Earth. Increasingly, geologists are taking a holistic approach in the collection and interpretation of data about the Earth, which means that the wider context of the geological sciences is broad and diverse. In studying the Earth as a system, we are concerned with geology and geophysics, hydrology, oceanography and marine science, meteorology and atmospheric science, planetary science, and soil science. A major in any relevant discipline can lead to a satisfying career within the geological sciences. In general, graduate training is expected for advancement to the most rewarding positions and for academic employment.

Geologists are employed by governmental, industrial, and academic organizations. Geologists work in exploration for new mineral and hydrocarbon resources, as consultants on engineering and environmental projects, as teachers and researchers in universities, and in many other challenging positions. For many, the attraction of a career in geology is the ability to divide time between work in the field, the laboratory, and the office. Although the employment outlook within geology varies with the global economic climate, the long-range outlook is good. This is because our dwindling energy, mineral, and water resources, along with increasing concerns about natural hazards and environmental issues, present new challenges for geologists.

The Geology Program at Maryland includes a broad range of undergraduate courses to accommodate both Geology majors and students within the Environmental Science and Policy Program. Within the Geology major, a requirement exists for a senior undergraduate research project to be performed under the direction of a faculty advisor. This requirement provides invaluable experience in writing proposals and reports, gathering, analyzing and evaluating data, and delivering scientific talks. In addition, a Departmental Honors Program and a combined B.S./M.S. Program are available.

### Requirements for the Geology Major, Professional Track

The geology curriculum is designed to meet the requirements of industry, graduate school, and government. For the B.S. degree, the students are required to complete the departmental requirements (49 credits) and the supporting requirements (23/24 credits) in addition to the CORE (general education) Program requirements. The department requires that to receive a degree in Geology, students must have a grade of C or better in the required Geology Courses, and an average of C or better in the Supporting Courses.

Courses required for the B.S. in Geology are listed below. Some courses require field trips for which the students are expected to pay for room (if required) and board. Field camp is taken during the summer at institutions other than the University of Maryland, College Park, that offer camps approved by the department.

|  | Semester<br>Credit Hours |
|--|--------------------------|
| <b>CORE Program Requirements*</b>            | 46                       |
| <b>Geology Courses</b>                       |                          |
| <b>One</b> of the following:                 | 4                        |
| GEOL 100/110 Physical Geology and Laboratory |                          |
| GEOL 120/110 Environmental Geology and Lab   |                          |
| GEOL 102 Historical Geology                  | 4                        |
| GEOL 322 Mineralogy                          | 4                        |
| GEOL 340 Geomorphology                       | 4                        |
| GEOL 341 Structural Geology                  | 4                        |
| GEOL 342 Stratigraphy and Sedimentation      | 4                        |
| GEOL 393 Technical Writing                   | 3                        |
| GEOL 394 Research Problems                   | 3                        |
| <b>One</b> of the following:                 |                          |
| GEOL 444 Low Temperature Geochemistry        | 4                        |
| GEOL 445 High Temperature Geochemistry       |                          |
| <b>One</b> of the following:                 |                          |
| GEOL 446 Geophysics                          | 3                        |
| GEOL 472 Tectonics                           |                          |
| GEOL 451 Groundwater                         | 3                        |
| GEOL 423 Optical Mineralogy                  | 3                        |
| GEOL 443 Petrology                           | 4                        |
| GEOL 490 Field Camp                          | 6                        |
|  | 49                       |

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### Supporting Courses

|  |       |
|--|-------|
| CHEM 135 General Chemistry for Engineers and<br>CHEM 136 General Chemistry for Engineers Laboratory  | 4     |
| MATH 140 Calculus I  | 4     |
| MATH 141 Calculus II   | 4     |
| PHYS 141 General Physics   | 4     |
| <b>One</b> of the following  |       |
| PHYS 142 General Physics   |       |
| BIOM 301 Introduction to Biometrics  |       |
| Any of GEOL 444, 445, 446 or 472 not already completed<br>to meet the requirements above or any other 300 or 400<br>level Geology course not listed. |       |
| Credit hours-supporting requirement  | 23-24 |

\*Of the normal CORE requirements (46 credit hours), at least 13-14 credits are met by the major requirements in Mathematics, Chemistry, Geology or Physics (Mathematics and the sciences area).

### Requirements for the Geology Major, Secondary Education Track

The Secondary Education Track in Geology leads to a B. S. Degree in Geology with special emphasis on course work that helps prepare the student for teaching at the secondary school level. Further coursework and student teaching are required for an education certification. This track also prepares the student for work as a geologist in government or industry, or for further graduate study, although students primarily intending to attend graduate school in Geology are advised to choose the Professional Track.

Relative to the professional Geology track, in the secondary education track there is a reduction of two upper-level Geology course requirements, but the addition of two Education courses and a Meteorology requirement. Further coursework in Education (including student teaching) will be required in order to obtain a Maryland State Teaching Certification. Although Geology is by nature interdisciplinary, it is recommended that students consider taking additional courses in Astronomy, Biology and the philosophy of science in order to add to their educational breadth. The department requires that to receive a degree in Geology, students must have a grade of C or better in the required Geology Courses, and an average of C or better in the Supporting Courses.

|   | <b>Semester<br/>Credit Hours</b> |
|---|----------------------------------|
| <b>CORE Program Requirements**</b>                            | 30                               |
| **excluding mathematics, science and one capstone requirement |                                  |

### Geology Courses

|  |       |
|--|-------|
| <b>One</b> of the following:                 | 4     |
| GEOL 100/110 Physical Geology and Laboratory |       |
| GEOL 120/110 Environmental Geology and Lab   |       |
| GEOL 102 Historical Geology                  | 4     |
| GEOL 322 Mineralogy                          | 4     |
| GEOL 340 Geomorphology                       | 4     |
| GEOL 341 Structural Geology                  | 4     |
| GEOL 393 Technical Writing                   | 3     |
| GEOL 394 Research Problems (Capstone)        | 3     |
| GEOL 490 Field Camp                          | 6     |
| <b>Plus</b> 3 courses selected from:         |       |
| GEOL 342 Stratigraphy and Sedimentation      | 4     |
| GEOL 445 High Temperature Geochemistry       | 4     |
| GEOL 451 Groundwater                         | 3     |
| GEOL 423 Optical Mineralogy                  | 3     |
| GEOL 443 Petrology                           | 4     |
| Credit hours Geology requirement             | 41-43 |

### Supporting Courses

|   |    |
|---|----|
| CHEM 135 General Chemistry for Engineers and<br>CHEM 136 General Chemistry for Engineers Laboratory | 4  |
| AOSC 200 Weather and Climate  | 3  |
| CHEM 113 General Chemistry II   | 4  |
| MATH 140 Calculus I   | 4  |
| MATH 141 Calculus II  | 4  |
| PHYS 141 General Physics  | 4  |
| Credit hours supporting requirement   | 23 |

### Education Courses

6 credits chosen from the following:

|  |   |
|--|---|
| EDPL 301 Foundations of Education                                    | 3 |
| <b>or</b> EDPL 401 Educational Technology, Policy, and Social Change | 3 |
| EDHD 413 Adolescent Development                                      | 3 |
| EDHD 426 Cognitive and Motivational Basis of Reading I               | 3 |
| EDCI 463 Teaching Reading in Content Area II                         | 3 |
| Credit hours Education requirement                                   | 6 |

### Recommended:

ASTR 100 **or** 101 Astronomy  
BSCI 105 and BSCI 106 Principles of Biology I and II  
PHIL 250/HIST 174 Philosophy/History of Science  
PHYS 142 General Physics, second semester  
The remaining 6 credits of the Education courses listed above

### Combined B.S./M.S. in Geology

The Combined B.S./M.S. program is designed to permit a superior student to earn both the Bachelor's and the Master's degrees following five years of study. The combined program is an integrated experience of undergraduate and graduate work. Nine credits of graduate courses taken as an undergraduate can be counted towards both the B.S. and M.S. degrees. The master's thesis may be a continuation of work began as part of the undergraduate senior thesis.

Acceptance into the Combined B.S./M.S. normally would occur after the end of the sophomore year. The minimum requirements for acceptance into this program are similar to those for the Geology Honors program and are:

1. An overall GPA of at least 3.0 at the end of the sophomore year and a GPA of 3.0 or better in all courses required for the major.
2. At least three letters of recommendation.
3. An essay or statement of purpose.
4. An interview with the undergraduate Honors Director and the Graduate Director.

The Combined B.S./M.S. program allows 9 credits of graduate courses (600-level or above) to be counted towards both the B.S. and M.S. degrees. A grade of "B" or better must be earned in each of these courses.

Continued progress in the program requires completion of the undergraduate curriculum, a GPA of 3.5 or better in GEOL 393 and GEOL 394, and maintenance of a 3.0 overall GPA and a GPA of 3.0 or better in all courses required for the major. The requirements for admission into the graduate program must also be met, including receiving acceptable scores in the General GRE exam, usually taken during the fall term of the senior year.

### Requirements for the M.S. Degree

There are no changes from the current requirements. Students must complete 24 credits of course work approved by the Graduate Committee and 6 credits of thesis research and defend a research proposal and a thesis. Students in the Combined B.S./M.S. may bring forward up to 9 credits at the 600 level from their B.S. program.

### Minors

An undergraduate Minor recognizes concentrated study in a designated field in the College Of Computer, Mathematical, and Physical Sciences. The award of a Minor will be noted on the student's transcript at the time of graduation.

These minors may be earned by students not majoring in Geology and are administered by the Geology Undergraduate Studies Director. A grade of "C" or better must be earned in all courses required for the minor. See [www.geol.umd.edu](http://www.geol.umd.edu) for more information.

### Minor in Surficial Geology

Required: GEOL 100/110 (Physical Geology/Lab) or GEOL 120/110 (Environmental Geology/Lab), GEOL 123 Global Climate Change), GEOL 340 (Geomorphology), Plus two of: GEOL 342 (Sedimentation and Stratigraphy), GEOL 451 (Groundwater), GEOL 452 (Watershed and Wetland Hydrology), GEOL 331 (Principles of Paleontology).

**Minor in Earth Material Properties**

Required: GEOL 100/110 (Physical Geology/Lab) or GEOL 120/110 (Environmental Geology/Lab), GEOL 322 (Mineralogy) Plus two of: GEOL 341 (Structural Geology), GEOL 423 (Optical Mineralogy), GEOL 443 (Petrology), GEOL 445 (High Temperature Geochemistry).

**Minor in Earth History**

Required: GEOL 100/110 (Physical Geology/Lab) or GEOL 120/110 (Environmental Geology/Lab), GEOL 102 (Historical Geology) Plus three of: GEOL 331 (Principles of Paleontology), GEOL 341 (Structural Geology), GEOL 342 Sedimentation and Stratigraphy), GEOL 436 (Biogeochemistry).

**Minor in Hydrology**

Required: GEOL 100/110 (Physical Geology/Lab) or GEOL 120/110 (Environmental Geology/Lab), GEOL 322 (Mineralogy), GEOL 342 (Sedimentation and Stratigraphy); Plus two of: GEOL 436 (Biogeochemistry), GEOL 444 (Low Temperature Geochemistry), GEOL 451 (Groundwater), GEOL 452 (Watershed and Wetland hydrology).

All Geology minors are an appropriate disciplinary combination with Astronomy, Computer Science, Mathematics, or Physics majors within CMPS. The minors are also appropriate for majors outside the college with appropriate matches including, but not limited to:

Geography/Remote Sensing (Surficial Geology)  
Engineering and Material Sciences (Earth Material Properties)  
Evolutionary Biology and Physical Anthropology (Earth History)  
Biology, Biological Diversity, and ecology (Earth History, Hydrology)

**Advising**

The Geology Undergraduate Studies Director serves as the advisor for the geology majors, 1119 Geology Building, 301-405-4379. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Undergraduate Studies Director to make appropriate plans.

**Honors**

Admission to the Program is by invitation of the Honors Committee, normally at the end of the sophomore year and normally will be extended to students with an overall GPA of 3.0 or better and a GPA of 3.0 or better in all courses required for the major.

Graduation with Honors normally requires completion of the curriculum, a GPA of 3.5 or better in GEOL 393H and GEOL 394H, and maintenance of a 3.0 overall GPA and a GPA of 3.0 or better in all courses required for the major. Maintenance of a GPA of 3.5 or above and a grade of A in both GEOL 393H and GEOL 394H will earn the distinction of Graduation with High Honors.

The curriculum for Honors in Geology follows the University Honors Program Track I: Thesis Option with a 15 credit minimum.

1. The requirement for upper division Honors courses will be met by a minimum of 9 hours as follows:
  - a. GEOL 489H Recent Advances in Geology (3 credit hours), and
  - b. 6 credit hours from the following:
    - i) a 3 credit hour graduate-level course approved by the Departmental Honors Committee,
    - ii) Honors Option project in a three or four credit hour upper-level course from the offerings in the Geology Department. The Honors Option

Proposal must be approved by the Departmental Honors Committee, the professor teaching the course and the University Honors Program. A proposal must be approved by the Department and submitted to the University Honors Program by the 10th day of class in the semester in which the course will be taken and the project completed.

2. The research and thesis requirement will be met by completion of GEOL 393H and GEOL 394H with a GPA of 3.5 or better (6 credit hours).

**Honors and Awards**

Bengt Svenonius Memorial Scholarship for graduating senior with the highest overall scholastic average; Fernow Memorial Faculty Field Camp Awards for geology majors to attend geology summer camp; Sigma Gamma Epsilon Award for a senior in geology for Outstanding Scholastic Achievement and service to the Society; and Best Senior Research Award.

**Student Organizations**

Sigma Gamma Epsilon, National Honor Society for Earth Sciences, and the Geology Club.

Course Code: GEOL

**GERMANIC STUDIES (GERM)**

For more information, consult School of Languages, Literatures, and Cultures elsewhere in this chapter.

**GOVERNMENT AND POLITICS (GVPT)****College of Behavioral and Social Sciences**

3140 Tydings Hall, 301-405-4156

[www.bsos.umd.edu/gvpt](http://www.bsos.umd.edu/gvpt)

Professor and Chair: Lichbach

Professors: Alford†, Alperovitz, Barber, Butterworth†, Elkin, Franda, Gimpel, Glass†, Graber, Heisler, Herronson†, Lichbach, Oppenheimer†, Pearson, Pirages, Questert†, Telhami, Tismaneanu†, Uslaner, Walters\*, (African American Studies), Wilkenfeld, Williams, Wilson\* (JM Burns Academy of Leadership)

Associate Professors: Conca, Davenport, Haufler, Kaminski, Lalman, Layman, Lee, McIntosh, Morris, Schreurs, Soltan, Swistak

Assistant Professors: Grob, Kastner, Kaufmann, Kim, Schwedler

Instructor: Vietri

†Distinguished Scholar Teacher

\*Joint Appointment with unit indicated

The Department of Government and Politics offers programs for the general student as well as for students who are interested in careers in government, the public sector, politics, foreign assignments, teaching, a variety of graduate programs, and law schools. Satisfactory completion of requirements leads to a Bachelor of Arts degree in government and politics.

The study of politics is both an ancient discipline and a modern social science. The origin of the discipline can be traced back to the earliest times when philosophers, statesmen, and citizens studied the nature of government, justice, responsibility, and the consequences of political action. More recently, the study of politics has also emphasized scientific analysis and methods of observations about politics. Today, the discipline reflects a broad effort to collect data about politics and governments utilizing relatively new techniques developed by all of the social sciences.

The Department of Government and Politics combines philosophical and scientific concerns in its overall program as well as in specific courses. It emphasizes such broad areas as political development, policy analysis, social justice, political economy, conflict, and human rights. These broad conceptual areas are integral components of study in the discipline. The areas are commonly referred to as American government and politics; comparative government; political theory; international relations; public administration; public law; public policy and political behavior.

**Majoring in Government and Politics and the Academic Review**

Government and Politics is a limited enrollment program that has special requirements for admission, such as minimum GPA guidelines and required courses. Students planning on transferring into the major should contact the department for details on Limited Enrollment requirements. Students admitted as incoming freshman will have their academic review after 45 credits.

**Requirements for Major**

Government and Politics majors must complete 36 semester hours of GVPT courses with a minimum grade of C in each course. At least 18 of the 36 credits must be in upper-level courses and all majors are required to complete GVPT 100, GVPT 170 or GVPT 171, and GVPT 241.

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In addition, all majors must complete ECON 200, MATH 111, 140, 200 or STAT 100 which includes quantitative and foreign language courses from a select list, and a secondary area of concentration in another department or approved interdisciplinary area. All courses used to satisfy these requirements must be completed with a minimum grade of C.

### Honors Program

All students majoring in government may apply for admission to the GVPT Honors Program. Additional information concerning the Honors Program may be obtained at the department offices.

### Internships

The department offers students a variety of internship experiences. Only six hours of graded GVPT internship credit will apply to the 36 hours needed in the major. Internship credit graded on a pass/fail basis may not be used to satisfy the GVPT major requirements. In no case may more than 12 internship credits be counted towards the 120 credits needed to graduate. Internships are generally open only to GVPT majors with junior standing and a 3.0 GPA.

### Advising

Academic advising is available daily on a walk-in or appointment basis in the Undergraduate Advising Office, 1147 Tydings Hall. Walk-in schedules are posted on-line at [www.bsos.umd.edu/GVPT/undergraduate](http://www.bsos.umd.edu/GVPT/undergraduate).

Course Code: GVPT

## HEALTH

See Public and Community Health later in this chapter.

## HEARING AND SPEECH SCIENCES (HESP)

### College of Behavioral and Social Sciences

0100 Lefrak Hall, 301-405-4214

[www.bsos.umd.edu/hesp/](http://www.bsos.umd.edu/hesp/)

Professor and Chair: Ratner

Professors: Gordon-Salant, McCall (Emeritus), Yeni-Komshian (Emerita)

Associate Professors: Roth

Assistant Professors: Chatterjee, Fitzgerald, Newman, Shah, Tian

Instructors: Antonisse, Bonelli, Brewer, Davis, Fitzgibbons, Hakim, Handy, McCabe, Nagra, Oberzut, Palmer, Park, Perloth, Samlan, Sampugnaro, Sherlock, Sisskin, Skinker, Sonies, Worthington, Zalewski

Affiliate Professor: Stone

Adjunct Associate Professor: Chi-Fishman

Adjunct Professor: Drayna, Gaillard, Grafman

### The Major

Hearing and speech sciences is an inherently interdisciplinary field, integrating knowledge from the physical and biological sciences, medicine, psychology, linguistics, and education in order to understand human communication and its disorders. The department curriculum leads to the Bachelor of Arts degree. An undergraduate major in this field is an appropriate background for graduate training in Speech-Language Pathology or Audiology, as well as for graduate work in other disciplines requiring a knowledge of normal or disordered speech language, or hearing. The student who wishes to work professionally as a speech-language pathologist or audiologist must obtain a graduate degree in order to meet national certification requirements, and most state licensure laws.

The hearing and speech sciences curriculum is designed in part to provide supporting course work for majors in related fields, so most course offerings are available to both departmental majors and non-majors. Permission of instructor may be obtained for waiver of course prerequisites for non-majors wishing to take hearing and speech courses of interest.

### Requirements for Major

A student majoring in hearing and speech sciences must complete 33 semester hours of required courses (HESP 120, 202, HESP 300, HESP 305, HESP 311, HESP 400, HESP 402, HESP 403, HESP 404, or HESP 406, HESP 407 and HESP 411) and six semester hours of electives in the department to satisfy major course requirements. No course with a grade less than C may count toward major course requirements. In addition to the 36 semester hours needed for a major, 9 semester hours of supporting courses in statistics and other related fields are required. For these 12 hours, a C average is required. In addition, when a HESP course has a listed pre-requisite, this pre-requisite must have been completed with a grade of C or better before registration in the subsequent course will be approved.

A guide to the major is available through the department office in room 0100 Lefrak or on the departmental website at [www.bsos.umd.edu/hesp/](http://www.bsos.umd.edu/hesp/)

Course sequencing is extremely important within this major. Advising for majors is mandatory.

#### Required courses for the HESP major:

|  |   |
|--|---|
| HESP 202 Introduction to Hearing and Speech Sciences               | 3 |
| HESP 120 Introduction to Linguistics                               | 3 |
| PSYC 100 Introduction to Psychology                                | 3 |
| HESP 300 Introduction to Psycholinguistics                         | 3 |
| HESP 305 Anatomy and Physiology of the Speech Mechanism            | 3 |
| HESP 311 Anatomy, Physiology, and Pathology of the Auditory System | 3 |
| HESP 400 Speech and Language Development in Children               | 3 |
| HESP 402 Speech Pathology I: Language Disorders in Children        | 3 |
| HESP 403 Introduction to Phonetic Science                          | 3 |
| HESP 404 Speech Pathology II: Voice and Fluency Disorders or       | 3 |
| HESP 406 Speech Pathology III: Aphasia and Neuromotor Disorders    | 3 |
| HESP 407 Bases of Hearing Science                                  | 3 |
| HESP 411 Introduction to Audiology                                 | 3 |

#### Electives Students must take six credits from the following offerings:

|   |   |
|---|---|
| HESP 386 Experiential Learning  | 3 |
| HESP 417 Principles and Methods in Speech Language                    | 3 |
| Pathology and Audiology   | 3 |
| HESP 418 Clinical Practice in Speech Language Pathology and Audiology | 3 |
| HESP 420 Deafness and sign language                                   | 3 |
| HESP 422 Neurological bases of human communication                    | 3 |
| HESP 423 Phonetics for teachers of English as a second language       | 3 |
| HESP 469 Honors thesis research                                       | 3 |
| HESP 498 Seminar in Hearing and Speech Sciences (topics vary).        | 3 |
| HESP 499 Independent Study  | 3 |

#### Allied/Related Fields (12 credits):

In addition to a required statistics course, the student will take six credits from course offerings in Allied/Related Fields and PSYC 100. A full list of these offerings is available in the Hearing and Speech Sciences Department undergraduate guide.

## The Minor

#### Requirements for the HESP minor include the following coursework:

|  |
|--|
| HESP 202 (Introduction to Hearing and Speech Sciences) |
| HESP 300 (Introduction to Psycholinguistics)           |
| HESP 400 (Child Language Acquisition)                  |
| HESP 403 (Phonetics)                                   |
| HESP 407 (Hearing Science)                             |

#### PLUS 2 courses in one of the two elective areas:

|   |
|---|
| Elective option 1 (Speech-Language Pathology Focus)       |
| HESP 305 (Anatomy/Physiology of the Speech Mechanism) and |
| HESP 402, 404 or 406 (Speech Pathology I, II or III)      |

#### Elective option 2 (Audiology focus)

|   |
|---|
| HESP 311 (Anatomy/Physiology/Pathology of the Auditory Mechanism) and |
| HESP 411 (Introduction to Audiology)                                  |

#### TOTAL CREDITS: 21

**All classes must be completed with a grade of C or better; as with HESP majors, students must obtain a grade of C or better in a class order to enroll in any courses that require that class as a pre-requisite.**

This course sequence acquaints the student with the primary basic science background in the speech, language and hearing sciences, and permits the student to select two courses in the specific professional areas of speech, language or hearing based on the student's primary interest area.

This minor is designed for the student in other majors (such as Psychology, Education, Linguistics, FOLA, etc.) who may have plans to attend graduate school in the fields of Speech-Language Pathology or Audiology. These courses are widely viewed as pre-requisite for admission to such programs and constitute a proportion (but not the full extent) of coursework required for eventual post M.A. or post-Au.D. certification by the American Speech-Language Hearing Association as either a Speech-Language Pathologist or Audiologist. Because both graduate programs and ASHA may require additional coursework, the student pursuing the HESP minor is strongly encouraged to meet with a HESP academic advisor to ensure that eventual educational goals are properly addressed. The HESP minor does not qualify an individual to work professionally as a Speech-Language Pathologist or Audiologist, but does provide a proportion of the coursework required to practice in the State of Maryland as a Speech-Language Pathology Assistant.

## Departmental Honors

An Honors option in HESP is available to students. This option must be declared prior to the junior year, and requires a 3.5 or higher GPA overall and in HESP coursework. For specific information on procedures for completing the Honors option, consult the Undergraduate Director or the department guide.

## Advising

Information on advising for hearing and speech sciences may be obtained by calling the department office, 301-405-4214. An undergraduate program guide is available through the department office at 0100 Lefrak, or on the web at [www.bsos.umd.edu/hesp/](http://www.bsos.umd.edu/hesp/). Advising appointments may be made at [www.bsos.umd.edu/hesp/hespaptcalendar/](http://www.bsos.umd.edu/hesp/hespaptcalendar/)

## Special Opportunities

The Department operates a sizeable Hearing and Speech Clinic (301-405-4218) and an award-winning language enrichment preschool, the LEAP program. Both serve the campus and greater metropolitan area, and provide in-house opportunities for clinical observation and training. The department facilities also include a number of well-equipped speech, language and hearing research laboratories.

## Student Organizations

Hearing and speech majors are invited to join the department branch of the National Student Speech-Language and Hearing Association (NSSLHA).

Course Code: HESP

## HISTORY (HIST)

### College of Arts and Humanities

2115 Francis Scott Key Hall, 301-405-4265  
[www.history.umd.edu](http://www.history.umd.edu)

Professor and Chair: Gerstle

Distinguished University Professors: Berlin, Brush, Gilbert

Professors: Belz, Eckstein, Friedel, Gullickson, Harris, Henretta†, Herf, Holum, Lampe, Lapin, Michel, Olson, Price, Rozenblit, Sutherland, Vaughan, Weinstein, Zhang

Associate Professors: Barkley-Brown, Cooperman, M. David-Fox, Gao, Grimsted, Landau, Lyons, Mayo, Moss, Muncy, Ridgway, Rowland, Sicilia, Sumida, Williams, Zilfi

Assistant Professors: Bradbury, K. David-Fox, Giovacchini, Gordon, Mar, Zeller  
†Distinguished Scholar Teacher

The Department of History seeks to broaden the student's cultural background through the study of history and to provide preparation for those interested in law, publishing, teaching, journalism, civil service, military, museum work, archival and library work, diplomacy, business school, and graduate study.

Undergraduate advisors assist each major in planning a curriculum to meet his or her personal interests. We encourage students to meet with an advisor, both in the department and in the College of Arts and Humanities, once every semester.

The department sponsors a History Undergraduate Association which majors and other interested students are encouraged to join. It also sponsors Phi Alpha Theta, study-abroad programs, and experiential learning (internships).

## Requirements for Major

Requirements for the History major are 39 hours of history course work distributed as follows: 12 hours in 100-200 level introductory courses selected from at least two general geographical fields of history **and including History 208**; 15 hours in one major area of concentration (see below); nine hours of history in at least two major areas other than the area of concentration; **History 408**. All courses for the major must be completed with a minimum grade of C, and 21 hours of the 39 total hours must be at the junior-senior (300-400) level.

At least one course (three credits), must be taken from an approved list of courses on regions outside both Europe and the U.S. The list may be obtained from the History Undergraduate Advisor's Office.

### I. Introductory Courses

1. The requirement is 12 hours at the 100-200 level taken in at least two geographical fields.
2. **One of these must be History 208.**

3. In considering courses that will fulfill this requirement, students are encouraged to:
  - a. select at least two courses in a sequence
  - b. select at least one course before 1500 and one course after 1500
  - c. sample both regional and topical course offerings. Students will normally take one or more introductory courses within their major area of concentration.

### II. Major Area of Concentration

1. The requirement is 15 hours.
2. Students may choose an area of concentration that is either geographic, chronological, or thematic. Areas include:
  - a. Geographic regions: Africa, Britain and Western Europe, East Asia, Eastern Europe and Russia, Latin and South America, Middle East, United States;
  - b. Chronological periods; Ancient, Medieval and Early Modern Europe, 20th Century World;
  - c. Themes: African-American, Economic and Business, Jewish, Military, Religious, Science and Technology, Social and Cultural Women and Gender.

### III. Nine Hours of History in at Least Two Areas Outside the Area of Concentration

1. Students are encouraged to select mainly upper-level courses.
2. Students are encouraged to consider regional diversity.

### IV. Capstone

**History 408 will be taken in the senior year and may be inside or outside the area of concentration.**

### V. Supporting Courses Outside History

Nine credits at the 300-400 level in appropriate supporting courses; the courses do not all have to be in the same department. Supporting courses should study some aspect of culture and society as taught by other disciplines. A minimum grade of C is required.

A.P. and I.B. credits are accepted.

## Honors

The purpose of the Honors Program in History is to allow promising undergraduates to develop historical and historiographical skills, in an atmosphere that guarantees personal attention and encourages hard work and excellence. The program is a four-semester, 12-credit sequence that culminates in a senior thesis, a major research paper written under the close supervision of a faculty mentor. The program has two phases. In the junior year, students are introduced to the problems of history and writing at a sophisticated level via two seminars on problems in historiography. In the senior year, students take two supervised courses in the writing of the thesis. The minimum GPA for admission to the History Honors Program is 3.3.

Course Code: HIST

## HORTICULTURE (HORT)

The Horticulture and Agronomy programs have been reorganized into a single major, Natural Resource Sciences (NRSC). See **Natural Resource Sciences** elsewhere in this chapter. (**Note:** Courses formerly offered as HORT and AGRO are now offered as NRSC and PLSC.)

## HUMAN DEVELOPMENT/INSTITUTE FOR CHILD STUDY (EDHD)

### College of Education

3304 Benjamin Building, 301-405-2827  
[www.education.umd.edu/EDHD](http://www.education.umd.edu/EDHD)

Chair: Wigfield

Assistant Director/Institute for Child Study: Battle

Professors: Alexander†, Fox†, Guthrie, Killen, Rubin, Torney-Purta, Wentzel, Wigfield†

Associate Professors: Azevedo, Flatter, Jones-Harden, Klein, Marcus, Robertson-Tchabo

Assistant Professors: Cabrera, Parault, Wang

Emeriti: Bennett, Dittman†, Eliot, Gardner, Goering, Hatfield, Huebner, Matteson, Tyler

†Distinguished Scholar Teacher



## 124 Individual Studies Program

The Department of Human Development offers: (1) a major in Early Childhood Education; (2) undergraduate courses in human development at the 200, 300, & 400 levels; (3) graduate programs leading to the M.A., M.Ed., Ed.D., and Ph.D. degrees and the A.G.S. certificate; and (4) field experiences and internships to develop competence in applying theory to practice in schools and other settings. A concentration in life span human development and specializations in educational psychology and developmental sciences are available at the doctoral level. Faculty research in areas such as educational psychology, social, physiological, cognitive and moral development, achievement motivation, and early childhood education enhance the instructional program.

Faculty in the Department of Human Development teach courses designed for pre-service and in-service teachers in the College of Education as well as students from other departments across campus who are seeking an education minor or who desire to work with children and adolescents in school settings. These courses focus on child and adolescent development, language acquisition, cognition, motivation, and reading. In addition, the department offers undergraduate courses that help students meet CORE requirements and other degree requirements.

The Institute for Child Study provides consultant services and staff development programs for pre-school programs, parent groups, court systems, mental health agencies, and other organizations involved with helping relationships. Undergraduates and graduate students may participate in these programs through course work and internships.

### Early Childhood Education

Graduates of the Early Childhood Education program receive a Bachelor of Science degree and meet the requirements for teaching preschool, kindergarten and primary grades.

### Requirements for Major Including Program Options

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before students may enroll in courses identified as part of the professional sequence, they must first gain admission to the College of Education's Teacher Education Program.

### Admission

Application to the Teacher Education Professional Program must be made early in the semester prior to beginning professional courses. Admission procedures and criteria are explained in the College of Education entry in Chapter Six. The Early Childhood program is a Limited Enrollment Program (LEP), which admits students on a space-available basis. In addition to the College of Education selective admission requirements, early childhood majors must meet the following gateway requirements:

- (1) completion of a four-credit CORE laboratory physical science, a four-credit CORE laboratory biological science, Elements of Numbers and Operations (MATH 212), and Elements of Geometry and Measurement (MATH 213) with a minimum cumulative GPA in these four courses of 2.70
- (2) completion of Exploring Teaching in Early Childhood Education (EDHD 220) with a grade of B or better.

A description of the Early Childhood LEP is included in Chapter 6. Detailed information regarding the gateway requirements is available in the Office of Student Services, Room 1204 Benjamin.

### Advising

Advising is mandatory for all students desiring acceptance into the Teacher Education Program. Students will receive advising through individual advising appointments held during the early registration period. Information regarding the advising appointment schedule will be available each semester in Room 1117J Benjamin. Walk-in hours are also posted each semester.

### Honors and Awards

Early Childhood majors are eligible for the Ordwein Scholarship. Information is available in the Office of Student Services, Room 1204, Benjamin.

### Required Courses

The following courses are required in the program of studies for Early Childhood and may also satisfy the University's general education requirements. See departmental worksheets and advisors for additional information.

|   |   |
|---|---|
| PSYC 100  | 3 |
| Social Science (ANTH, ECON, GEOG, GVPT, HIST, SOCY) | 3 |
| HIST 156  | 3 |
| Biological Science w/lab: BSCI                      | 4 |
| Physical Science w/lab: ASTR, CHEM, GEOL, PHYS      | 4 |
| EDPL 210 <b>or</b> EDPL 301                         | 3 |

#### Other Pre-Professional Requirements

|   |     |
|---|-----|
| MATH 212 and MATH 213   | 6   |
| Creative Art: One of the following: KNES 181, 182, 183, 421, THET 120, EDCI 301, ARTT 100 <b>or</b> 110, MUED 155 | 2-3 |
| EDHD 220 -Exploring Teaching in ECE   | 3   |
| EDHD 210 Foundations of ECE   | 3   |
| EDHD 285 Designing Multimedia Computer Environments for Learners  | 3   |
| EDHD 222 Literature in the Early Childhood Classroom  | 3   |

#### Professional Courses

The Early Childhood Professional Block I starts only in the Fall semester and is a prerequisite to Professional Block II. Professional Block III follows Professional Block II, and is taken in the Fall semester preceding student teaching. An overall grade point average of 2.5 must be maintained after admission to Teacher Education. All pre-professional requirements must be completed with a minimum grade of C before beginning the Early Childhood Professional Blocks. All professional courses must be completed with a minimum grade of C prior to student teaching. Teacher candidates must obtain satisfactory evaluations on the College of Education Technical Standards. See advisor for program planning. Additional information regarding the requirements for Student Teaching is included in the College of Education entry in Chapter Six.

#### Professional Block I: (Fall)

|   |   |
|---|---|
| EDHD 425 Language Development and Reading Acquisition | 3 |
| EDHD 419A Human Development and Learning              | 3 |
| EDSP 470 Introduction to Special Education            | 3 |

#### Professional Block II: (Spring)

|   |   |
|---|---|
| EDHD 424 Cultural and Community Perspectives      | 3 |
| EDHD 314 Reading in the EC Classroom-Part I       | 3 |
| EDHD 313 Creative Experiences for the Young Child | 3 |
| EDHD 419B Human Development and Learning          | 3 |
| EDHD 415 Social Competence in Young Children      | 3 |

#### Professional Block III: (Fall)

|   |   |
|---|---|
| EDHD 427 Constructing and Integrating the EC Curriculum | 3 |
| EDHD 323 Children Study Their World                     | 2 |
| EDHD 321 The Young Child as Scientist                   | 2 |
| EDHD 322 The Young Child as Mathematician               | 3 |
| EDHD 315 Reading in the EC Classroom-Part II            | 3 |
| EDHD 435 Effective Components of EC Classrooms          | 3 |

#### Professional Block IV: (Spring)

|                                |    |
|--------------------------------|----|
| EDHD 432 Student Teaching      | 12 |
| EDCI 464 Assessment of Reading | 3  |

Course Code: EDHD

## INDIVIDUAL STUDIES PROGRAM (IVSP)

1117 Hornbake Library, 301-314-9962  
IVSP Coordinator: Jeff Kniple  
[www.ivsp.umd.edu/](http://www.ivsp.umd.edu/)

Subject to a rigorous proposal process, the Individual Studies Program (IVSP) enables UM students to design unique majors when their educational goals cannot be reasonably achieved within an existing departmental curriculum. The Individual Studies Program leads to a Bachelor of Arts or Bachelor of Science degree. IVSP degree programs focus on academic and intellectual growth through interdisciplinary study. Training for a chosen profession is never the purpose of IVSP.

For more information, see Office of Undergraduate Studies section in Chapter 6.

## INFORMATION SYSTEMS: SPECIALIZATION BUSINESS

For information, consult the Robert H. Smith School of Business entry in chapter 6.

## JEWISH STUDIES PROGRAM (JWST)

### College of Arts and Humanities

0112 Holzapfel Hall, 301-405-4975  
[www.jewishstudies.umd.edu](http://www.jewishstudies.umd.edu)

Director: Hayim Lapin  
Professors: Berlin, Rozenblit  
Associate Professors: Cooperman, Lapin, Manekin  
Assistant Professors: Jelen, Zakim  
Instructors: Gonen, Levy

### The Major

The Jewish Studies major provides undergraduates with a framework for organized and interdisciplinary study of the history, philosophy, and literature of the Jews from antiquity to the present. Jewish Studies draws on a vast literature in a number of languages, especially Hebrew and Aramaic, and includes the Bible, the Talmud, and medieval and modern Hebrew literature. Yiddish language and literature comprise an important sub-field.

Departmental advising is mandatory.

### Requirements for Major

Requirements for the Jewish Studies major include the College of Arts and Humanities requirement of 45 upper-level credits completed. The College foreign-language requirement will be automatically fulfilled in the process of taking Hebrew language courses. The undergraduate major requires 48 semester hours (27 hours minimum at 300-400 level) in Jewish Studies. These courses may include courses offered by Jewish Studies or cross-listed by Jewish Studies with the Departments of Asian and East European Languages and Literatures, History, Philosophy, English, Women's Studies, and Comparative Literature.

A minimum grade of C is required in all courses offered toward major requirements. A major in Jewish Studies will normally conform to the following curriculum:

1. Prerequisite: HEBR 111, 112, 211, 212 (or placement exam)
2. Required courses: HEBR 313, 314; JWST 234, 235, and 309; one course in classical Jewish literature (200-level; JWST 272 is recommended); one upper-level course in Hebrew literature in which the text and/or language of instruction are in Hebrew. (21 credit hours)
3. Electives: 15 credits in Jewish Studies courses. At least nine credits must be at the 300-400 level.
4. Twelve credits of supporting courses in areas outside Jewish Studies such as history, sociology, philosophy, psychology, or literature, including at least six credits at the 300-400 level, to be selected with the approval of a faculty advisor.

### Minor in Jewish Studies

Requirements: 15 credits towards the Minor in Jewish Studies are to be distributed as follows:

- History: 3 credits
- Literature: 3 credits
- Thought, religion, or cultural studies: 3 credits
- Electives: 6 credits

A minimum of 9 credits must be at the upper level.

All credits must be earned with a grade of "C" or above.

A list of qualifying courses in each category is available from the Director of the JWST program.

Up to 3 credits of lower-level Hebrew or Yiddish language study may be credited toward the Minor. In exceptional cases, students may petition to have other languages included.

#### Restrictions:

- Students enrolled in the Jewish Studies Major are not eligible to enroll in the Minor.

- At least six credits of upper-level credit must be taken at the University of Maryland,
- No more than six credits may be taken at an institution other than Maryland.
- In keeping with University policy, no more than six credits may be also be applied to a major.

### Financial Assistance

The Meyerhoff Center for Jewish Studies [(301) 405-4975] offers scholarships for study in Israel. Applications for scholarships are accepted in early March.

See entries for Department of Asian and East European Languages and Cultures and East Asian Studies certificate elsewhere in this chapter. Students may also pursue a Jewish History concentration through the Department of History.

Course Code: JWST

## JOURNALISM (JOUR)

For information, consult the College of Journalism entry in chapter 6.

## KINESIOLOGY (KNES)

### College of Health and Human Performance

2351 HLHP Building, 301-405-2450  
[www.hhp.umd.edu/KNES](http://www.hhp.umd.edu/KNES)

Professor and Chair: Clark  
Associate Chair: Farmer  
Professors: Clark, Ennis, Hagberg, Hatfield, Hurley, Iso-Ahola  
Associate Professors: Andrews, Brown, Chen, Contreras-Vidal, Jeka, McDaniel, Rogers, Rohm-Young  
Assistant Professors: Roth, Shim, Silk  
Instructors: Brown, Metcalfe, Montfort, Schultz, Scott  
Emeriti: Clarke, Dotson, Franks, Hult, Humphrey, Husman, Kelley, Phillips, Steel, Wrenn

### The Majors

The Department of Kinesiology offers two undergraduate degree programs. Students may choose to major in Physical Education or in Kinesiological Sciences. Brief descriptions of each program follow. Students should obtain a current Student Handbook for the degree program of interest (available on the web at [www.hhp/umd.edu/KNES](http://www.hhp/umd.edu/KNES)). Both programs require a grade of C or better in all required course-work. Departmental contacts are Mr. Joshua Montfort for Physical Education (301-405-2502, [jmontfor@umd.edu](mailto:jmontfor@umd.edu)) or Dr. Marvin Scott (301-405-2480, [mwscott@umd.edu](mailto:mwscott@umd.edu)) for Kinesiology.

In addition to University general education classes (CORE), the following KNES Core classes are required for all majors (both degree programs):

KNES 287 Sport and American Society  
KNES 293 History of Sport in America  
KNES 300 Biomechanics of Human Motion  
KNES 350 Psychology of Sport  
KNES 360 Exercise Physiology  
KNES 370 Motor Development  
KNES 385 Motor Control and Learning

### Physical Education Major

The Physical Education degree program is designed to lead to Pre-K-12 teacher certification in the State of Maryland. Maryland teaching certificates are reciprocal with most other states. While this program is designed to provide professional preparation for individuals in public school settings, it also provides excellent preparation for those wishing to pursue other professional opportunities in sport, exercise, or physical activity. Also, due to the scientific foundation of the degree program, an appropriate background is established for future graduate work for those who desire to continue their studies in any area involving human movement and sport. Many courses require prerequisites and proper sequencing is very important. Not all courses are offered every semester. All interested students are urged to schedule an advising appointment with the program coordinator before declaring this major. Students should consult the department for updated information.

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### Physical Education Degree Requirements

|  |    |
|--|----|
| University Core (not included elsewhere*)            | 24 |
| KNES Core (KNES 287, 293, 300, 350, 360, 370, 385)   | 22 |
| Pedagogical Sequence                                 | 25 |
| (KNES 182, 183, 190, 245, 290, 291, 292, 371, 491)   |    |
| Supporting courses                                   | 21 |
| (BSCI 105*, BSCI 201*, BSCI 202, KNES 282, 333, 480) |    |
| College of Education requirements                    | 12 |
| (EDPL 301, EDHD 413, EDHD 426, EDCI 463)             |    |
| Student Teaching                                     | 15 |
| (KNES 390, EDCI 485, EDCI 495)                       | 1  |
| Elective   |    |

Minimum total semester hours for this program is 120 credits.

Admission to the College of Education is required upon completion of 45 applicable credits. Students must pass the Praxis I exam and have a GPA established by the College of Education in order to gain admission (Currently 2.50). Additional information is available from the College of Education.

### Kinesiological Sciences Major

This program offers students the opportunity to study the interdisciplinary body of knowledge related to human physical activity and sport and to pursue specific specializations so that each individual can prepare for a particular career goal within the broad discipline. There is no intent to orient all students toward a particular specialized interest, orientation or career. However, many current students are pursuing careers in medically-related fields (i.e., physical therapy, physician, chiropractor), in the fitness industry (i.e., corporate fitness, personal training, health fitness director) as well as in the sport industry (sport management, sport marketing, events management, equipment sales, athletic director). The program provides a hierarchical approach to the study of human movement. First, a broad core of knowledge is recognized as being necessary foundations to advanced and more specific courses. Secondly, at the "Options" level, students select from approved upper level KNES courses which they believe will provide the knowledge to pursue whatever future goal they set for themselves. To further strengthen specific areas of interest, students should carefully select electives. The program culminates with a senior seminar class in which students write a substantial paper and discuss the implications of research.

### Kinesiological Sciences Degree Requirements

|   |    |
|---|----|
| University Core (not included elsewhere*)               | 27 |
| KNES Core (KNES 287, 293, 300, 350, 360, 370, 385)      | 22 |
| Option Courses (all have KNES core prerequisites)       | 12 |
| (See departmental Bulletin Board, Handbook or web page) |    |
| Other required courses                                  | 18 |
| (BSCI 105*, BSCI 201*, BSCI 202, statistics, KNES 497)  |    |
| Physical Activities Courses (see Handbook or web page)  | 8  |
| Electives (approximately)                               | 33 |

Minimum total semester hours for program = 120 credits, including the general education (CORE) program.

### Advising

Advising is mandatory for Physical Education majors and strongly recommended (but not mandatory) for Kinesiological Sciences majors. Students in both majors are encouraged to join the departmental listserv (group electronic information) for weekly departmental and campus updates and internship/job information. Instructions for joining the listserv are available at the Main Office (HHP 2351). Students should also periodically check the Bulletin Boards near HHP 2335 for updated information. Kinesiological Sciences majors with greater than 80 credits should meet with an advisor to review and sign the senior audit.

Advisors are not assigned, although certain advisors handle issues related to policy exceptions, academic difficulties, change of major, athletes, and other special cases. Advising appointments are made through the Main Office (301-405-2450). Drop-in hours are available during non-peak registration times. Advisors can assist with registration procedures, program updates, University resources, career guidance, and related issues. Students are strongly encouraged to closely follow the program sheets that outline the order in which courses should be taken to allow proper and timely progression through the degree programs.

### Honors Program

The departmental Honors Program complements and extends the University Honors Program, although the admission to the University program is not required to be admitted to the departmental program. The departmental Honors Program provides junior and senior students with opportunities to engage in extended study, research and discussions with faculty. The program requires 18 credits of Honors versions of courses and a thesis, which will be defended before a faculty committee. Applicants must have a 3.5 overall GPA in a minimum of 45 credits and a 3.5 GPA in at least 9 credits from the Kinesiology Core. The faculty Honors Committee also considers leadership, motivation and maturity in the admission decision. Qualified students typically apply in the spring semester of the sophomore year. To remain in the program after admitted, students must maintain a 3.5 GPA. Students may graduate with high honors by completing a thesis rated as outstanding and earning a cumulative GPA of 3.7 or higher. Inquires about the program should be directed to Dr. David Andrews, Honors Program Coordinator, at 301-405-2474 or dla@umd.edu.

### Minor

#### Sport Commerce and Culture

The minor in Sport Commerce and Culture provides students with a unique opportunity to study the structure and experience of contemporary sport culture from an interdisciplinary perspective rooted in theories and methods largely – but not exclusively – drawn from anthropology, cultural studies, economics, gender studies, history, media and communication studies, psychology, race and ethnic studies, sociology, and urban studies. The minor requires 18 credits:

#### Required courses: Both the following courses (6 credits)

KNES 2871 Sport in American Society (3)  
KNES 2932 History of Sport in America (3)

N.B. These courses fulfill CORE SB/D1 and SH2 requirements

#### Elective Courses: Any four of the following 3-credit courses (12 credits)

|   |   |
|---|---|
| KNES 240 Exploring Cultural Diversity Through Movement          | 3 |
| KNES 350 The Psychology of Sports                               | 3 |
| KNES 351 Contemporary Issues in American Sport                  | 3 |
| KNES 355 Sport Management                                       | 3 |
| KNES 357 Sport and Culture in the Global Marketplace            | 3 |
| KNES 451 Children and Sport: A Psychosocial Perspective         | 3 |
| KNES 483 Sport Marketing and Media                              | 3 |
| KNES 484 Sporting Hollywood                                     | 3 |
| KNES 485 Sport and Globalization                                | 3 |
| KNES 486 Politics and Economics of Organized Contemporary Sport | 3 |

#### Please Note:

- Not all elective courses are offered every year.
- Temporary courses may be added to this list dependent on the Minor advisor's approval
- Relevant courses from other departments may be added to the list dependent on the Minor advisor's approval

Course Code: KNES

## LANDSCAPE ARCHITECTURE (LARC)

### College of Agriculture and Natural Resources

2139 Plant Sciences Building, 301-405-4359  
Program Coordinator: Jack Sullivan: jack@umd.edu  
Academic Program Specialist: Mary Jo Dosh: mdosh@umd.edu  
[www.larc.umd.edu/](http://www.larc.umd.edu/)

Professor and Chair: F. Coale  
Associate Professor and Coordinator: J.B. Sullivan  
Assistant Professors: S. Chang, D. Myers  
Instructor: D. Nola

### The Major

The Department of Natural Resource Sciences and Landscape Architecture offers three undergraduate majors. Two lead to the Bachelor of Science (B.S.) degree; one in Natural Resource Sciences and the other in General Agricultural Sciences. The third major leads to a Bachelor of Landscape Architecture (B.L.A.) degree. For additional information on General Agricultural Sciences and Natural Resource Sciences, see the entries for those programs elsewhere in this chapter.

The landscape architecture curriculum is a four-year professional program. The program is a site-based design discipline that also deals with regional and larger-scale environmental issues. The curriculum, a studio-based design program, integrates natural and social factor analysis into the design process. Digital design studios allow the integration of computer-aided design with fundamental design and drawing skills.

**Admission:** Landscape Architecture is a limited-enrollment program (LEP). See Chapter 1 of the Undergraduate Catalog for general limited-enrollment program admission policies. For further information contact the College of Agriculture and Natural Resources at 301-314-8375.

**Freshman Admission:** The program's goal is to have the greater proportion of program majors admitted as freshmen. Most entering freshmen will gain admission to the landscape architecture program directly from high school, as space permits. Early application is encouraged to ensure the best possible chance for admission.

**Transfer Admission:** Admission of transfer students is limited by space considerations: Students presenting an acceptable graphic portfolio, evaluated by the landscape architecture faculty, may be exempted from one or both of the first year studios. Landscape architecture faculty will evaluate all other LARC-equivalent courses transferred from another institution.

**The Academic Review:** All students will be subjected to an Academic Review after they have completed the first three design studio courses (or their equivalent) in the Landscape Architecture curriculum. To meet the provisions of the review, students must complete: (1) MATH 112 or MATH 115 with a minimum grade of C, (2) LARC 120 and 160 with a minimum grade of B, and LARC 140 and 141 with a minimum grade of C, (3) attain a successful review of a portfolio (a minimum of 80 points out of a possible 100) by the landscape architecture faculty to assess graphic and design skills, and (4) attain an overall GPA of at least 2.40. Students who do not meet these requirements will not be allowed to continue in the landscape architecture LEP and will be required to accept another major.

#### Other Policies Which Determine a Student's Retention in the Landscape Architecture Program:

- A student can only repeat one of the five Academic Review Course Requirements (LARC 120, 140, 141, 160 and MATH 112 or MATH 115). That particular course can only be repeated once.
- A grade of 'W' (Withdrawn) in a course is counted as an attempt.
- A student who does not meet the Academic Review requirements will be dismissed from the Program.
- A student who is dismissed from the Program will not be readmitted to the Landscape Architecture LEP.

**Appeals:** Students who are unsuccessful in gaining admission to the Landscape Architecture LEP and believe they have extenuating or special circumstances which should be considered, may appeal in writing to the Office of Undergraduate Admissions. The student will be notified in writing of the appeal decision.

Students in the Landscape Architecture LEP who do not pass the Academic Review, but believe they have special circumstances that should be considered, should appeal directly to the Coordinator of the Landscape Architecture program.

**BLA Degree Requirements:** The courses and credit hours that define the curriculum leading to the degree of Bachelor of Landscape Architecture (BLA) are described in the next section. The curriculum includes required courses for the major, as well as additional CORE program requirements and electives. Following the successful Academic Review and acceptance into the LARC Program, students must have an overall average of a C (2.0) to be eligible for the BLA degree. Students must also have grades of C or better in all required courses with the LARC designation.

## Curriculum in Landscape Architecture Landscape Architecture Degree (B.L.A.)

|  | Semester<br>Credit Hours |
|--|--------------------------|
| ENGL 393 Technical Writing   | 3                        |
| GEOG 340 Geomorphology <b>or</b><br>GEOG 372 Remote Sensing <b>or</b><br>NRSC 444 Remote Sensing of Agriculture and<br>Natural Resources | 3                        |
| LARC 120 Digital Fundamentals  | 2                        |
| LARC 140 Graphic Fundamentals Studio   | 4                        |
| LARC 141 Design Fundamentals Studio  | 4                        |

|  |            |
|--|------------|
| LARC 160 Introduction to Landscape Architecture  | 3          |
| LARC 221 Digital Design Tools  | 3          |
| LARC 240 Graphic Communication and Design Studio   | 4          |
| LARC 263 History of Landscape Architecture   | 3          |
| LARC 265 Site Analysis and Ecological Principles   | 3          |
| LARC 320 Principles of Site Engineering  | 3          |
| LARC 321 Landscape Structures & Materials  | 3          |
| LARC 340 Site Planning and Design Studio   | 5          |
| LARC 341 GIS and Regional Design Studio  | 5          |
| LARC 389 Internship in Landscape Architecture  | 3          |
| LARC 420 Professional Practice   | 3          |
| LARC 440 Urban Design Studio   | 5          |
| LARC 450 Environmental Resources <b>or</b><br>LARC 451 Sustainable Communities                 | 3          |
| LARC 470 Landscape Architecture Seminar  | 3          |
| LARC 471 Capstone/Community Design Studio  | 5          |
| MATH 112 College Algebra with Applications and Trigonometry <b>or</b><br>MATH 115 Pre-calculus | 3          |
| NRSC 200 Fundamentals of Soil Science  | 4          |
| PLSC 100 Introduction to Horticulture  | 4          |
| PLSC 253 Woody Plants for Mid-Atlantic Landscapes I  | 3          |
| PLSC 254 Woody Plants for Mid-Atlantic Landscapes II   | 3          |
| Total Major Requirements   | 87         |
| Additional CORE Program requirements   | 24         |
| Electives  | 9          |
| <b>Total</b>   | <b>120</b> |

## Internship Opportunities

Internships are available at nearby federal, state and county agencies as well as in private landscape architecture practices.

## Student Organizations

The Student Chapter of the American Society of Landscape Architects (ASLA) provides students with opportunities to get involved with on-campus activities. The club is chartered by ASLA.

## Scholarships

Several scholarships and awards are available to Landscape Architecture students. Contact the Associate Dean's office at 301-405-2078 for additional information.

Course Code: LARC

# LANGUAGES, LITERATURES AND CULTURES, SCHOOL OF (SLLC)

## College of Arts and Humanities

1105 Jiménez Hall, 301-405-4025  
[www.languages.umd.edu](http://www.languages.umd.edu)

Director: Michael Long  
Associate Director (Academic): Pierre Verdague  
Associate Director (Administrative): Charlotte Groff Aldridge

The School of Languages, Literatures, and Cultures is the primary academic unit devoted to instruction and research in the world's languages, literatures, and cultures. It consists of the Departments of Asian and East European Languages and Cultures; French and Italian Languages and Literatures; Germanic Studies; and Spanish and Portuguese Languages and Literatures; and the Second Language Acquisition program. The School offers study abroad programs in many countries, both short and long-term. Its Language House, a residential immersion facility for approximately 100 students located in St. Mary's Hall, is one of the most successful living-learning programs on campus.

In addition, the FOLA (Foreign Language Acquisition) program offers individualized instruction in less commonly taught foreign languages. The FOLA program is designed to enable qualified students to acquire a speaking knowledge through a structured self-instructional sequence of exercises and tutorials. Recent language offerings have included: Armenian, Dutch, Hindi, Hungarian, Polish, Swahili, Tagalog, Turkish, Urdu and Vietnamese."

## 128 Languages, Literatures and Cultures, School of

### ASIAN AND EAST EUROPEAN LANGUAGES AND CULTURES (AEEL)

2106 Jimenez Hall, 301-405-4239  
[www.languages.umd.edu/AsianEastEuropean](http://www.languages.umd.edu/AsianEastEuropean)

Professor and Chair: Ramsey  
Professors: Brecht, Karimi  
Associate Professors: Branner, Chin, Elgibali, Gor, Hitchcock, Kerkham, Lekic, Liu, Martin, Vetsukura, Yotsukura  
Assistant Professors: Chao, Jones, Papazian, Zakim  
Instructors: Levy, Miura, Yaginuma  
Lecturers: Crawford, Gonen, Hijazeen, Inoue, Kashima, Kong, Krizi, Lee, Mohamed, Nabavi, Pelleg, Y. Ramsey, Shayesteh, Yamakita, Zhu

*Students must take language-acquisition courses sequentially, i.e., 101, 102, 201, 202, etc. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.*

#### The Chinese Major

The Chinese major provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or the media. Students may also consider a double major in Chinese and another discipline, such as business, government and politics, economics, or journalism.

After completing the prerequisite of one year of language (12 credits): CHIN 101 (Elementary Chinese; six hours per week, fall); CHIN 102 (Elementary Spoken Chinese; three hours per week, spring); and CHIN 103 (Elementary Written Chinese; three hours per week, spring), students must complete 36 credits for the major course requirements (18 language, six civilization/history, 12 elective). No grade lower than C may be used toward the major.

Requirements for the Chinese major include the College of Arts and Humanities requirement of 45 upper-level credits completed. The College foreign-language requirement will automatically be fulfilled in the process of taking language major courses. Chinese students have the option of applying to live in St. Mary's Hall (Language House) and participating in a study-abroad program.

#### Chinese Course Requirements

##### Language:

|  |   |
|--|---|
| CHIN 201 Intermediate Spoken Chinese I   | 3 |
| CHIN 202 Intermediate Written Chinese I  | 3 |
| CHIN 203 Intermediate Spoken Chinese II  | 3 |
| CHIN 204 Intermediate Written Chinese II | 3 |
| CHIN 301 Advanced Chinese I              | 3 |
| CHIN 302 Advanced Chinese II             | 3 |

##### Civilization/History:

|  |    |
|--|----|
| Option I:                                      |    |
| HIST 284 East Asian Civilization I <b>and</b>  | 3  |
| HIST 481 A History of Modern China <b>or</b>   | 3  |
| HIST 485 History of Chinese Communism          | 3  |
| Option II:                                     |    |
| HIST 285 East Asian Civilization II <b>and</b> | 3  |
| HIST 480 History of Traditional China          | 3  |
| Electives (300-level or above)                 | 12 |

**Note:** Electives must be in Chinese language, literature, linguistics, or other East Asian subjects (one must be in the area of Chinese linguistics and one in the area of Chinese literature), and are subject to approval by the student's advisor.

#### Minor in Chinese Language

Minors in Chinese Language and Chinese Studies are available. Contact the department for requirements. Students who fulfill Minor requirements will receive a Minor on the official transcript.

#### The Japanese Major

The Japanese major provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or the media. Students may also consider a double major in Japanese and another discipline, such as business, international relations, economics, or journalism.

After completing the prerequisite of one year of language (12 credits): JAPN 101 (Elementary Japanese I; six hours per week, fall); and JAPN 102 (Elementary Japanese II; six hours per week, spring), students must complete 42 credits for the major course requirements (24 language, six civilization/history, 12 elective). No grade lower than C may be used toward the major.

Requirements for the Japanese major include the College of Arts and Humanities requirement of 45 upper-level credits completed. The College foreign language requirement will automatically be fulfilled in the process of taking language major courses. Japanese students have the option of applying to live in St. Mary's Hall (Language House) and participating in a study-abroad program.

#### Japanese Course Requirements

##### Language:

|                                   |   |
|-----------------------------------|---|
| JAPN 201 Intermediate Japanese I  | 6 |
| JAPN 202 Intermediate Japanese II | 6 |
| JAPN 301 Advanced Japanese I      | 6 |
| JAPN 302 Advanced Japanese II     | 6 |

##### Civilization/History:

|  |    |
|--|----|
| Option I:                                      |    |
| HIST 284 East Asian Civilization I <b>and</b>  | 3  |
| HIST 483 History of Japan Since 1800           | 3  |
| Option II:                                     |    |
| HIST 285 East Asian Civilization II <b>and</b> | 3  |
| HIST 482 History of Japan to 1800              | 3  |
| Electives (300-level or above)                 | 12 |

**Note:** Electives must be in Japanese language, literature, linguistics, or other East Asian subjects (one must be in the area of Japanese linguistics and one in the area of Japanese literature), and are subject to approval by the student's advisor.

#### Minors in Japanese

The Japanese Minor is a series of five courses to be chosen in consultation with a departmental advisor.

#### The Russian Major

The undergraduate major in Russian Language and Literature consists of 40 credits beyond the pre-requisite of Elementary Russian (Russian 101-102, or Russian 111-112-113-114 or equivalent). Many students pursue a double major or double degree in Russian and another discipline, such as international relations, business, history, economics, journalism, engineering, etc. Russian students have the opportunity to live in St. Mary's Language House, and the majority of majors participate in study abroad. Native or heritage speakers wishing to enroll in Russian courses or major in Russian should consult with the Undergraduate Advisor. Students interested in enrolling in a course that appears closed or that has a waitlist, are strongly encouraged to contact the faculty member or Undergraduate Advisor for Russian for permission to enroll.

#### Russian Course Requirements

|  |   |
|--|---|
| RUSS 201 Intermediate Russian I        | 5 |
| RUSS 202 Intermediate Russian II       | 5 |
| RUSS 301 Advanced Russian I            | 3 |
| RUSS 302 Advanced Russian II           | 3 |
| One additional course at the 300-level | 3 |
| RUSS 401 Advanced Russian Composition  | 3 |
| RUSS 402 Practicum in Written Russian  | 3 |
| One additional course at the 400-level | 3 |

Four electives (total of 12 credits) from departmental offerings, two of which must be 300- or 400-level courses taught in Russian. One supporting course outside the department (at the 300-level or above) may be counted toward the major with an advisor's prior approval. All courses counting toward the major must be passed with a "C" or better. Transfer credits (from study abroad or another US institution) may count toward the major with departmental approval.

#### Minor in Russian Studies

Students may complete a Minor in Russian Studies that consists of a minimum of 15 credits/five courses. A minimum of six credits must be earned from courses in Russian. A minimum of nine credits must be at the 300- or 400-level. Transfer credits (from study abroad or another US institution) may count toward the Minor with prior approval of the department. In most cases, a maximum of six transfer credits will be approved. All courses counting toward the minor must be passed with a "C" or better.

## Other AEEL Language Programs

### Arabic Language

While there is no Arabic major, the Arabic language program enables students to read and write Modern Standard Arabic (the language of radio, television, and newspapers throughout the Arab World), as well as to communicate with native speakers of Arabic. Three levels, elementary, intermediate, and advanced are offered. These courses develop students' knowledge of Arabic in reading, writing and speaking, while also introducing them to Arabic and Islamic culture.

### Hebrew Language

The Hebrew Language Program provides, both to beginners and to those with previous background, an opportunity to acquire knowledge and skills in Hebrew language, culture, and thought. Elementary and Intermediate level language courses develop effective communication skills in modern Hebrew. Upper-level language courses emphasize reading comprehension, vocabulary enrichment, and writing skills. More advanced students focus on the analytical study of major classical and modern Hebrew texts.

While there is no Hebrew major, students wishing to focus on Hebrew language as a primary subject may do so through a concentration on Hebrew within the Jewish Studies major (see Jewish Studies Program).

The University of Maryland sponsors a semester program at Tel Aviv University. Scholarships for study in Israel are available through the Meyerhoff Center for Jewish Studies. Hebrew students have the option of applying to live in St. Mary's Hall (Language House). and participating in a study-abroad program.

### Korean Language

Students are able to study this language by pursuing either one of two tracks. The first consists of KORA 101, 102, 202, and 212 and is designed for students with no previous background in, or exposure to, Korean language and culture. The second track consists of KORA 211, 212, 311, and 312. It is a heritage sequence for students who were exposed to Korean as children, but who do not have native fluency in the language. Students who wish to enroll in either track will need to be placed by the instructor. In addition to these four language skill courses, the department offers KORA 242, an introductory course on the structure of the Korean language, and KORA 241, a survey of the history of the Korean language.

### The Korean Studies Minor

The Korean Studies Minor provides students with a basic knowledge of Korea and its language and culture. Five three-credit courses are required, and three of the five must be at the 300-level (or above). This minor is open to both heritage and non-heritage students alike. Students who fulfill Minor requirements will receive a Minor on the official transcript. Those interested should contact the faculty in the Korean Language Program for advisement.

### Persian Language

While there is no Persian major, the Persian program offers language courses at the introductory, intermediate, and advanced levels, and literature courses at the 300 and 400 levels. A minor and a major in Persian Studies are in preparation.

## FRENCH AND ITALIAN (FRIT)

3106C Jimenez Hall, 301-405-4024  
[www.languages.umd.edu/FrenchItalian](http://www.languages.umd.edu/FrenchItalian)

Professor and Chair: Brami  
 Professors: Mossman, Verdaguer  
 Associate Professors: Campagne, Falvo, Letzter, Scullen  
 Assistant Professor: Eades  
 Lecturers: Amodeo, Clough  
 Emeriti: Fink, Hage, Meijer, Russell, Tarica, Therrien

French and Italian are two of the world's great languages of culture, providing access to an outstanding body of literature and criticism, studies in the arts, the humanities, the social and natural sciences, and career opportunities in commerce, foreign affairs, and the academic world. The department seeks to provide an atmosphere conducive to cultural awareness and intellectual growth. It supports multiple study abroad programs in France and Italy and works actively with the French and Italian language clusters of the Language House.

## The French Major

Requirements for the French major include the College of Arts and Humanities requirements of 45 upper-level credits completed. The College foreign language requirement will be automatically fulfilled in the process of taking language major courses.

The undergraduate major in French consists of 36 hours of French courses above FREN 203. Two options, having the same core, lead to the Bachelor of Arts degree: (1) French language, culture, and literature, and (2) French/International Business. No grade lower than C may be used toward the major. Students intending to apply for teacher certification should consult the Undergraduate Advisor as early as possible for proper planning.

Students must take language acquisition courses sequentially, i.e., 103, 203, 204, 250, etc. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

### Advising

Departmental advising is mandatory for second-semester sophomores and seniors. Undergraduate advisor: L. Clough

### Requirements

**Core required of all majors (12 credits): FREN 204, 250, 301, 401.**

### French Language, Culture and Literature Option (24 credits)

In addition to core: FREN 351, 352; 311 or 312, 302 or 303; four additional 400-level courses of which only one may be in English.

### French and International Business Option (24 credits)

In addition to core: FREN 302, 303, 306, 311, 312 or 404; 406; two of the following: 351, 352, 471, 472, 473, 474.

### Honors

A student may choose to do a departmental Honors version in the French Language Culture and Literature Option. The requirements are the same except that at least three of the upper-level courses, beginning with FREN 351, must be taken in the "H" version, and that, in addition to those courses regularly taken for the major, the Honors student will take FREN 495H (Honors Thesis), for a total of 39 hours in French. For further information, consult the Undergraduate Advisor.

## The Italian Major

The undergraduate major in Italian consists of 36 hours of Italian courses above ITAL 203. To satisfy the major requirements, students must take the following courses: the language sequence: ITAL 204, 211, 301, and either 302 or 311; the literature sequence: 251, 350; six courses at the 400-level, of which only one may be in English. No grade lower than C may be used to satisfy the major requirements. Additional requirements outside Italian: 12 credits in supporting courses as approved by the department; or at least 12 credits (six credits at the 200-level and six credits at the 300-400 level) in one specific area, representing a coordinated plan of study.

Students must take language acquisition courses sequentially, i.e., 203, 204, 301, etc. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

## The Romance Languages Major

The Romance Languages Program is intended for students who wish to major in more than one Romance language. Either French or Italian, or both, may serve as components of this major.

### The Major

Students selecting this major must take a total of 45 credits selected from courses in two of the three components listed below: French, Italian and Spanish. The first four courses listed under each group are required for that particular language component; exceptions or substitutions may be made only with the approval of the student's advisor in consultation with the Romance Languages Advisory Committee. To achieve the total of 45 credits, 21 credits are taken in each of the two languages, as specified, and three additional credits are taken at the 400-level in either of the languages chosen. Literature or civilization courses may not be taken in translation.

There are no requirements for support courses for the Romance Languages major.

## 130 Languages, Literatures and Cultures, School of

No grade lower than C may be used toward the major. Students who wish to apply for Teacher's Certification should consult the College of Education.

### Requirements for Each Language

**French** 204, 250, 301, 351, 352; two additional literature or civilization courses at the 400-level. **Italian** 204, 211, 301, 350; three additional literature or civilization courses at the 400-level. **Spanish** 207, 301, 321-322 or 323-324; one additional language course at the 300- or 400-level; two additional literature or civilization courses at the 400-level.

### Minors

#### Minor in French Studies

15 credit hours. Five courses in French from approved list of courses. Students who fulfill Minor requirements will receive a Minor on the official transcript.

Course Codes: FREN, ITAL

### GERMANIC STUDIES (GERM)

3215 Jimenez Hall, 301-405-4091

[www.languages.umd.edu/german](http://www.languages.umd.edu/german)

Professor and Acting Chair: Pfister

Professors: Beicken<sup>†</sup>, Oster, Frederiksen<sup>†</sup>

Associate Professors: Strauch, Walker

Assistant Professor: Alene Moyer

Emeriti: Best, Herin, Jones

<sup>†</sup>Distinguished Scholar Teacher

**Changes in major requirements are under review. For more information, please contact the department at 301-405-4091 or Dr. Pfister at 301-405-4106.**

### The German Language and Literature Major

The undergraduate major in German Language and Literature consists of 36 hours beyond the basic language acquisition sequence (GERM 101-201). No course completed with a grade lower than C may be used to satisfy the major requirements. Three program options lead to the Bachelor of Arts (B.A.) degree: 1) German language, 2) German literature, and 3) Germanic area studies. Secondary concentration and supportive electives are encouraged in the other foreign languages, comparative literature, English, history, and philosophy. Majors intending to go on to graduate study in the discipline are urged to develop a strong secondary concentration in a further area of Germanic studies. Such concentrations are available in German language, German literature, Scandinavian studies, and Indo-European and Germanic philology. All majors must meet with a departmental advisor at least once each semester to update their departmental files and obtain written approval of their program of study.

### Advising

Departmental advising is mandatory for second-semester sophomores, juniors, and seniors.

### Requirements for Major

Requirements for the Germanic Studies major include the College of Arts and Humanities requirement of 45 upper-level credits completed.

The College foreign-language requirement will be automatically fulfilled in the process of taking language major courses.

#### German Language Option

CORE: 220, 301, 302, 321, and 322. Specialization: three of four German language courses (401, 403, 405, 419P); two 400-level German literature courses; two upper-level courses in any of the three areas of specialization.

#### German Literature Option

CORE: 220, 301, 302, 321, and 322. Specialization: five 400-level German literature courses; two upper-level courses in any of the three areas of specialization.

#### Germanic Area Studies Option

CORE: 220, 301, 302, 321, and 322. Modern Scandinavian Specialization: 369, 461; five upper-level courses in the Germanic area studies group. Medieval Scandinavian Specialization: 383, 475; five upper-level courses in the Germanic area studies group.

Also available is a German Business Option, an International Business-German Business Option, and an Engineering-German dual degree. Students should contact a departmental advisor for more information.

Students must take language-acquisition courses sequentially, i.e., 101, 102, or 103, 201, 202, or 203. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

### Honors in German

The department offers an extensive Honors Program for majors. The Honors Program affords Honors students sustained individual contact with faculty members. Honors Students are called on to work independently, to pursue a project that carries them beyond the regular undergraduate curriculum. Interested students should ask for detailed information from the department Honors Studies Director.

### Minors

#### Minor in German Language, Literature, and Culture

15 credit hours from approved list of courses. Courses taken through Study Abroad programs may be applied. Contact the Director of Office of Undergraduate Studies for more information. Students who fulfill Minor requirements will receive a Minor on the official transcript.

Course Code: GERM

### SPANISH AND PORTUGUESE (SPAP)

2215 Jimenez Hall, 301-405-6441

[www.languages.umd.edu/SpanishPortuguese](http://www.languages.umd.edu/SpanishPortuguese)

Professor and Acting Chair: Cypess

Professor Emerita: Nemes

Professors: Aguilar-Mora, Cypess, Harrison, Pacheco<sup>††</sup>, Sosnowski

Associate Professors: Benito-Vessels, Igel, Lavine, Merediz, Naharro-Calderón, Peres, Rodriguez

Assistant Professors: Lacorte, Sánchez

Instructors: Remson, Roman

<sup>††</sup>Distinguished University Professor

### The Spanish Language and Literature Major

Requirements for the Spanish Language and Literature Major includes the College of Arts and Humanities requirement of 45 upper-level credits completed. The College foreign-language requirement will be automatically fulfilled in the process of taking language major courses.

Undergraduate majors can benefit from a wide range of courses in Spanish and Latin American literature and civilization; technical courses in translation, linguistics, and commercial uses of Spanish. Area studies programs are also available in conjunction with other disciplines to provide the student with a solid knowledge of the Spanish and Latin American worlds.

A grade of at least C is required in all major and supporting area courses.

Departmental advising is mandatory for second-semester sophomores and seniors.

### Language and Literature Option

Courses: SPAN 207, 221, 301-302, 311 or 312, 321-322 or 323-324, 325-326 or 346-347; plus four courses in literature at the 400-level; one course may be taken in Luzo-Brazilian literature, for a total of 39 credits. Nine credits of supporting courses, six of which must be at the 300- or 400-level in a single area other than Spanish, for a combined total of 48 credits. Suggested areas: art, comparative literature, government and politics, history, philosophy, and Portuguese.

### Foreign Area Option

Courses: SPAN 207; 301-302; 311 or 312; 315 and 415 or 316 and 317; 321-322 or 323-324; 325-326 or 346-347, plus three courses in literature at the 400-level; one course may be taken in Luzo-Brazilian literature, for a total of 39 credits. Nine credits of supporting courses, six of which must be at the 300- or 400-level in a single area other than Spanish, for a combined total of 48 credits. Suggested areas: anthropology, economics, geography, government and politics, history, Portuguese, and sociology.

## Translation Option

Courses: SPAN 207; 301-302, 311 or 312; 316 and 317; two courses from 318, 356, 357, 416, 417; 321-322 or 323-324; one course from 325, 326, 346, 347; plus two courses in literature at the 400-level; one course may be taken in Luzo-Brazilian literature, for a total of 39 credits. Nine credits of supporting courses, six of which must be at the 300- or 400-level in a single area other than Spanish, for a combined total of 48 credits. Suggested areas: art, comparative literature, government and politics, history, philosophy, and Portuguese.

## Business Option

Courses: SPAN 207; 211; 301-302; 311 or 312; 315 and 415; 316 and 317; 325-326 or 346-347; 422, for a total of 36 credits. Twelve credits of supporting courses, six of which must be at the 300- or 400-level in a single area other than Spanish. Suggested areas: business and management, economics, government and politics, history and geography.

Students interested in majoring in a combination of two Romance languages should see the description of the Romance Languages Program, above.

## The Romance Languages Major

See description of the Romance Languages Major under **French** and **Italian**.

## Minors

### Minor in Spanish Language and Cultures

15 credit hours. Five courses in Spanish from an approved list of courses. Courses taken through Study Abroad programs may be applied. Contact the Director of Office of Undergraduate Studies for more information.

### Minor in Portuguese Languages and Cultures

15 credit hours. Free courses in Portuguese from approved list of courses. Contact the Director of Office of Undergraduate Studies for more information.

### Minor in Spanish Language, Business, and Cultures

15 credit hours. Five courses from an approved list of courses.

Students who fulfill Citation requirements will receive a Citation on the official transcript.

## Honors

The department Honors Program offers qualified students the possibility of working in close contact with a mentor on an original thesis. Honors seminars are primarily for students who have been accepted to the Program, but are open to others with the approval of the Honors Director. Honors students must take six credits of Honor Thesis. Interested students should see the Director of the Spanish Honors Program.

## Lower-Division Courses

The elementary and intermediate courses in Spanish and Portuguese consist of two semesters of four credits each (103-203). The language requirement for the B.A. degree in the College of Arts and Humanities is satisfied by passing 203 or equivalent. Students who wish to enroll in Spanish 103 or 203 must present their high school transcript for proper placement. See the Schedule of Classes for further information.

Transfer students with college credit have the option of continuing at the next level of study.

Students must take language acquisition courses sequentially, i.e., 103, 203, 204, etc. Once credit has been received in a higher-level language acquisition or grammar course, a lower-level course may not be taken for credit.

Course Codes: SPAN, PORT

## LINGUISTICS (LING)

### College of Arts and Humanities

1401 Marie Mount Hall, 301-405-7002

Professor and Chair: Hornstein  
Distinguished University Professor: Lasnik  
Professors: Pietroski, Uriagereka  
Associate Professors: Idsardi, Lidz, Phillips, Poeppel, Resnik, Weinberg  
Research Scientist: Zukowski  
Senior Lecturers: Antonisse, Bleam  
[www.ling.umd.edu](http://www.ling.umd.edu)

## The Major

The Linguistics Department offers courses on many aspects of language study and an interdisciplinary major leading to a Bachelor of Arts. Language is basic to many human activities and linguistics relates to many other disciplines which include work on language.

Work on language has provided one of the main research probes in philosophy and psychology for most of the 20th century. It has taken on a new momentum in the last 30 years and language research has proven to be a fruitful means to cast light on the nature of the human mind and on general cognitive capacity. Several courses focus on a research program which takes as a central question: How do children master their native language? Children hear many styles of speech, variable pronunciations, and incomplete expressions, but, despite this flux of experience, they come to speak and understand speech effortlessly, instantaneously, and subconsciously. Research aims to discover how this happens, how a person's linguistic capacity is represented in the mind, and what the genetic basis for it is. Students learn how various kinds of data can be brought to bear on their central question and how that question influences the shape of technical analyses.

The major in Linguistics is designed for students who are primarily interested in human language *per se*, or in describing particular languages in a systematic and psychologically plausible way, or in using language as a tool to reveal some aspect of human mental capacities. Such a major provides useful preparation for professional programs in foreign languages, language teaching, communication, psychology, speech pathology, and artificial intelligence (and thus in computer work).

Departmental advising is mandatory for second-semester sophomores and seniors.

## Requirements for Major

Core required of all majors (15 credits): LING 240, 311, 321, two of six upper level courses (312, 322, 330, 410, 420, HESP403)

### Grammars and Cognition Track (24 credits in addition to core)

In addition to core: PHIL 170 or 173 or 271; LING 350; PSYC 100; PSYC 341; two upper level LING electives; two electives in LING, PSYC, HESP, PHIL, or CMSC.

### Language Track (24 credits in addition to core)

In addition to core: 15 credits of a single chosen language; 3 credits in structure or history of the language; two upper level LING electives.

There are no requirements for support courses for the Linguistics major.

A grade of at least 'C' is required in all major courses.

## Minors

### Minor in Linguistics

15 credit hours: 200, 240, 321, 311, one upper level linguistics elective.

All courses presented for the minor must be passed with a grade of 'C' or better.

## Honors

Academically talented Linguistics majors with junior standing may petition to become honors candidates in Linguistics.

Course Code: LING

## LETTERS AND SCIENCES (LTSC)

For information, see Office of Undergraduates Studies in Chapter 6.



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### LOGISTICS, BUSINESS AND PUBLIC POLICY

For information, consult the Robert H. Smith School of Business entry in chapter 6.

### MARKETING

For information, consult the Robert H. Smith School of Business entry in chapter 6.

### MATERIALS SCIENCE AND ENGINEERING (ENMA, ENNU)

#### A. James Clark School of Engineering

2135 Chemical and Nuclear Engineering Building, 301-405-5207  
[www.mse.umd.edu](http://www.mse.umd.edu)

Chair: Briber

Professors: Al-Sheikhly, Armstrong\* (Emeritus), Arsenault (Emeritus), Briber, Christou, Dieter\* (Emeritus), Oehrlein, Roytburd, Rubloff, Salamanca-Riba, Smith (Emeritus), Wuttig

Associate Professors: Ankem, Lloyd, Martinez-Miranda, Phaneuf, Takeuchi

Assistant Professor: Cumings

Adjunct: Lawn

Affiliate Associate Professors: Anderle, Hathaway, Kofinas, Mohammad, Zachariah\*

\*Member of Mechanical Engineering Department

#### The Major

The development, production and use of novel materials has become a major issue in all fields of engineering. Materials which are strong and light at the same time are needed for space structures; faster electro-optical switching materials will result in improved mass communications; and stronger high temperature plastics would improve the efficiency of transportation systems. Students will have the opportunity to work with faculty and industry on complex problems through projects, internships, and research and co-op experiences. A wide variety of careers are open to graduates of this program ranging from production and quality control in the traditional materials industries to the molecular construction of electronic materials in ultra-clean environments, and to the applications of materials in electronic packages. The application of materials to solve environmental, energy, and reliability problems are also career options.

Students may major in the Bachelor of Science in Materials Science and Engineering Program or may use Materials Engineering as a field of concentration in the Bachelor of Science Engineering Program.

#### Mission Statement

The mission of the Materials Science and Engineering Department at the University of Maryland is to provide a quality engineering education, research at the forefront of the field, and leadership to the Materials and Engineering communities. Our educational programs have the following objectives:

- Produce high quality graduates who will be successful in their chosen careers in industry, government or academia, in the State of Maryland, the nation and the world
- Teach our students to define and solve engineering and science problems in the field of Materials Science and Engineering
- Provide our students with the ability to relate basic physics, math and engineering principles to the field of materials science and engineering so they can function professionally as materials engineers and scientists
- Prepare our students to design and engineer materials and manufacturing systems for the next generation of products and deal effectively with the rapid pace of technological advances
- Continually improve our educational program, attract the best students and improve the visibility and stature of the program

These objectives will be accomplished by providing the following educational outcomes for students majoring in Materials Science and Engineering:

- A solid foundation in mathematics, physics, chemistry, and basic engineering sciences
- An integrated educational program emphasizing structure, properties, processing and performance of materials and the interrelations between them along with the design of materials systems, design of experiments and data interpretation
- An opportunity to develop in-depth knowledge in specific areas of materials science and engineering which include: design and applications of materials and manufacturing, materials science, organic materials, electrical and electronic materials or biomaterials
- The opportunity to work with faculty and industry on complex problems through projects, internships, and research and co-op experiences
- A culminating design experience centered about a senior design project which brings together the many aspects of materials science and engineering in a global context that prepares the student to function as a practicing engineer on a multi-disciplinary team
- Continuous improvement of written and oral communication skills throughout the curriculum through lab reports, papers and individual/group project presentations
- Emphasis of current science and technology materials in the curriculum and the relationship of the engineering profession in a societal and global context
- Integration of professional and ethical responsibility in the curriculum
- Mandatory semester advising and planning of individually tailored educational and curriculum goals for students
- Mandatory mentoring for four semesters, generally during the sophomore and junior years. This is intended to provide the student with increased access to faculty members and an opportunity to discuss career options and preparation with other faculty members in addition to their advisor

#### Requirements for Major

Requirements for the Materials Science and Engineering major include thorough preparation in mathematics, chemistry, physics, and engineering science as well as the required University general education (CORE) requirements. All students will be required to select an area of specialization, an upper-class science elective, and two technical electives. A minimum of 123 credits is required for a bachelor's degree. A sample program follows:

|   | Semester  |           |
|---|-----------|-----------|
|   | I         | II        |
| <b>Freshman Year</b>                                    |           |           |
| CORE Program Requirements                               |           | 6         |
| ENES 100 Introduction to Engineering Design             | 3         |           |
| ENMA 181* Introduction to Engineered Materials, Seminar | 1         |           |
| CHEM 135 General Chemistry for Engineers                | 3         |           |
| CHEM 136 Chemistry Lab                                  | 1         |           |
| MATH 140 Calculus I                                     | 4         |           |
| MATH 141 Calculus II                                    |           | 4         |
| ENGL 101 Introduction to Writing                        | 3         |           |
| ENES 102 Statics.                                       |           | 3         |
| PHYS 161 General Physics I                              |           | 3         |
| <b>Total</b>  | <b>15</b> | <b>16</b> |

\*Recommended, but not required.

|  |           |              |
|--|-----------|--------------|
| <b>Sophomore Year</b>                                      |           |              |
| Core Program Requirements                                  | 3         | 3            |
| MATH 241 Calculus III                                      | 4         |              |
| MATH 246 Differential Equations for Scientists and Engr    |           | 3            |
| PHYS 262-263 General Physics                               | 4         | 4            |
| ENES 230 Introduction to Materials and their Applications. | 3         |              |
| ENEE 204 Basic Circuit Theory                              |           | 3            |
| CHEM 233 Organic Chem, or CHEM 481*, Phys. Chem. I         |           | 4 or 3       |
| <b>Total</b>   | <b>14</b> | <b>17,16</b> |

\*Chem 233 is required for students specializing in organic materials

|  |   |   |
|--|---|---|
| <b>Junior Year</b>   |   |   |
| CORE Program Requirements                                    | 3 | 3 |
| ENMA 310 Materials Laboratory I, Structural Characterization | 3 |   |
| ENMA 311 Materials Laboratory II: Electromagnetic Properties |   | 3 |
| ENMA 362 Mechanical Properties                               | 4 |   |
| ENMA 460 Physics of Solid Materials                          | 3 |   |

|                                       |           |           |
|---------------------------------------|-----------|-----------|
| ENMA 461 Thermodynamics of Materials  | 3         |           |
| ENMA 465 Microprocessing of Materials | 3         |           |
| Specialization Electives              | 3         | 3         |
| <b>Total</b>                          | <b>16</b> | <b>15</b> |

#### Senior Year

|  |           |           |
|--|-----------|-----------|
| CORE Program Requirements  | 3         | 3         |
| ENMA 463 Macroprocessing of Materials                                  | 3         |           |
| ENMA 471 Kinetics, Diffusion and Phase Transformations                 | 3         |           |
| ENMA 490 Materials Design  |           | 3         |
| Specialization Electives   | 3         | 3         |
| Technical Electives  | 3         | 3         |
| ENRE 445/446   |           |           |
| or ENME 392 Statistical Methods—Principles of Quality and Reliability. |           | 3         |
| Upper-level science elective   | 3         |           |
| <b>Total</b>   | <b>18</b> | <b>15</b> |

**Minimum Degree Credits:** 124 or 125 credits and the fulfillment of all department, school, and university requirements.

Four suggested specialization areas with example classes follow. Students are expected to take four specialization electives in one particular area during their junior and senior years after consulting with their advisor.

**Materials Science:** ENMA 464 Environmental Effects; ENMA 420 Intermediate Ceramics; ENMA 489C Electronic Packaging Materials; ENMA 495 Polymeric Materials; ENMA 481 Electronic Materials; ENMA 499 Laboratory Projects

**Applications of Materials and Manufacturing:** ENMA 472 Technology and design of Engineering Materials; ENMA 421 Design of Composites; ENMA 424 Manufacturing Ceramics; ENMA 423 Manufacturing Polymers; ENME 400 Machine Design; ENME 465 Fracture Mechanics; ENAE 424 Design and Manufacturing of Composites and Prototypes; ENMA 499 Laboratory Projects

**Organic Materials:** ENMA 495 Polymeric Materials; ENMA 496 Processing of Polymers; ENCH 490 Introduction to Polymer Chemistry; ENMA 423 Manufacturing Polymers; ENCH 494 Polymer Technology Laboratory; ENMA 499 Laboratory Projects

**Microelectric Materials:** ENMA 481 Introduction to Electronic and Magnetic Materials; ENMA 489C Electronic Packaging Materials; ENEE 302 Digital Circuits; ENEE 460 Control Systems; ENEE 480 Fundamentals of Solid State Electronics.

## Admission

All Materials Science and Engineering students must meet admission, progress, and retention standards of the A. James Clark School of Engineering.

## Advising

Students choosing materials science and engineering as their major or materials engineering as their primary or secondary field of concentration should contact Dr. Kathleen Hart, the Undergraduate Programs Coordinator, Room 1113, Chemical and Nuclear Engineering Building, at 301-405-5989. Dr. Hart can set up appointments with Professors Lloyd or Martinez-Miranda, the Undergraduate Advisors. Any questions about the program should be directed to Dr. Ray Phaneuf, Office of Undergraduate Studies Director.

## Co-op Program

The Materials Science and Engineering program works within the A. James Clark School of Engineering Cooperative Engineering education Program. For details, see the A. James Clark School of Engineering entry in chapter 6.

## Financial Assistance

Financial Aid based upon need is available through the Office of student Financial Aid. Faculty Merit Scholarships are offered to outstanding students by the department. Other scholarships are available through the A. James Clark School of Engineering. The department offers opportunities for research internships with faculty.

## Honors and Awards

Each of the large number of professional-materials-oriented societies such as the metallurgical and ceramic societies sponsor awards to recognize outstanding scholarship and undergraduate research. All students enrolled in the materials engineering program are encouraged to select a faculty advisor who in their junior and senior years will guide them towards nomination for these awards. Awards from MRS, TMS Societies are available.

Student organization: There is an active student chapter of The Minerals, Metals & Materials Society (TMS).

Course Code: ENMA

## Nuclear Engineering Program (ENNU)

1113 Chemical and Nuclear Engineering Building, 301-405-5989

Professor and Chair: Briber

Use of Nuclear Engineering as a field of concentration in the Bachelor of Science in Engineering program has been suspended for the time being.

## MATHEMATICS (MATH)

### College of Computer, Mathematical and Physical Sciences

1117 Mathematics Building, Undergraduate Office, 301-405-5053

[www.math.umd.edu/](http://www.math.umd.edu/)

Professor and Chair: Fitzpatrick

Professors: J. Adams, Antman††, Benedetto†, Berenstein, Boyle, Brin, Cohen, Cooper, Fey\*\*, Freidlin††, Glaz, Goldman, Grillakis, Grove, Gulick, Halperin!!!!, Hamilton, Healy, Herb, Jakobson, Johnson, Kagan, Kedem, King, Kudla, Kueker, Laskowski, Lay†, Levermore\*\*\*, Lipsman!!!, Lopez-Escobar, Liu\*\*\*, Machedon, Millson, Nochetto, Novikov††, Osborn, Pego, Rosenberg, Schafer, Schwartz†††, Slud, Tadmor\*\*\*!, Tzavaras, Washington, Wolfe, Wolpert!!!!, Yang, Yorke††\*\*\*

Associate Professors: Dolgopyat, Dolzmann, Hunt\*\*\*, Ramachandran, Smith, Trivisa, von Petersdorff, Warner, Winkelkemper

Assistant Professors: Haines, Kapovitch, Korolov

Chancellor: Kirwan

Professors Emeriti: W. Adams, Alexander, Auslander, Babuska††, Brace, Correl, Edmundson, Ehrlich, Ellis, Goldhaber, Good, Green, Heins, Horvath, Hubbard, Hummel, Kellogg, Kleppner, Lehner, Markley, Martin, Neri, Olver, Owings, Syski, Zedek

Associate Professors Emeriti: Berg, Dancis, Helzer, Sather, Schneider

Affiliate Professors: O'Leary, Stewart, Young

Adjunct Professor: Rinzel

Senior Lecturer: Gulick

Lecturers: Cremins, Daberkow, Franklin, McLaren, Stone, Wyss-Gallifent

†Distinguished Scholar Teacher

††Distinguished University Professor

†††Ruth Davis Professor

\*\*Joint Appointment: Department of Curriculum and Instruction

\*\*\*Joint Appointment: IPST

!Director, AMSC

!!Director, CSC AMM

!!!Associate Dean, UGST

!!!!Dean, CMPS

!!!!Chancellor, USM

The program in mathematics leads to a degree of Bachelor of Science in mathematics and offers students training in preparation for graduate work, teaching, and positions in government or industry. Mathematical training is integrated with computer use in several courses. Because a strong mathematical background is important in several fields, over a third of UMCP mathematics majors are double majors. Additional information on these topics and mathematics is available from the department website.

## Requirements for Major

There are three tracks for the major: the traditional track, the secondary education track, and the statistics track. The secondary education track is for students seeking to become certified to teach mathematics at the secondary level. Each mathematics major must complete each required course with a grade of C or better.

## TRADITIONAL TRACK

### Major Requirements:

1. The introductory sequence MATH 140,141,240, 241 or the honors sequence MATH 340-341. Completion of MATH 340 satisfies the requirement for MATH 241; completion of MATH 340-341 satisfies the requirement for MATH 240-241-246.
2. One of the courses MATH 246, 341, 414, 436, 462.
3. Eight MATH/AMSC/STAT courses at the 400-level or higher, at least four of which are taken at College Park. The eight courses must include:
  - (a) At least one course from MATH 401, 403, 405.
  - (b) One course from AMSC 460,466.

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- (c) MATH 410: Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410.
- (d) A one-year sequence which develops a particular area of mathematics in depth, chosen from the following list:
  - (i) MATH 410-411
  - (ii) MATH 410-412
  - (iii) MATH 403-404
  - (iv) MATH 403-405
  - (v) STAT 410-420
- (e) The remaining 400-level MATH/AMSC/STAT courses are electives, but cannot include any of: MATH 400, 461, 478, 480-484, or STAT 464. Also, students with a strong interest in applied mathematics may, with the approval of the Undergraduate Office, substitute two courses (with strong mathematics content) from outside the Mathematics Department for one upper-level elective course.
- 4. One course from CMSC 106, 114, 131, 132, ENAE 202, ENEE 114, or PHYS 165. A student may be exempt from this requirement if he or she can demonstrate adequate programming knowledge from prior course work experience.
- 5. One of the following supporting three-course sequences. These are intended to broaden the student's mathematical experience. Other sequences might be approved by the Undergraduate Office but they would have to make use of mathematical ideas, comparable to the sequences on this list.
  - (a) (i) PHYS 161-260/1-270/1
  - (ii) PHYS 171-272-273
  - (b) ENES 102, PHYS 161, ENES 220
  - (c) (i) CMSC 132-212-250
  - (d) (i) CHEM 146/7, 237, 247
  - (ii) CHEM 131/2, 231/2, 241/2
  - (e) ECON 200-201 (previously ECON 201-203), and one of ECON 305 or 306
  - (f) BMGT 220-221 and 340

### SECONDARY EDUCATION TRACK

#### Major Requirements:

1. The introductory sequence MATH 140,141,240, 241 or the honors sequence MATH 340-341. Completion of MATH 340 satisfies the requirement for MATH 241; completion of MATH 340-341 satisfies the requirement for MATH 240-241-246.
2. One of the courses MATH 246, 341, 401, 452, 462 or AMSC 460 or 466.
3. Seven MATH/AMSC/STAT courses at the 400-level or higher, at least four of which are taken at College Park. The seven courses must include:
  - (a) MATH 410: Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410.
  - (b) MATH 402 or MATH 403
  - (c) MATH 430
  - (d) STAT 400 or STAT 410
  - (e) At least one course from MATH 406, 445, 446, 447, 450, 456 or 475.The remaining 400-level MATH/AMSC/STAT courses are electives, but cannot include any of: MATH 400, 461, 478, 480-484, or STAT 464.
4. One course from CMSC 106, 114, 131, 132, ENAE 202, ENEE 114 or PHYS 165. Student may be exempt from this requirement if he or she can demonstrate adequate programming knowledge from prior course or work experience.
5. EDCI 450 and 451\*
6. One of the following supporting two course sequences. These are intended to broaden the student's mathematical experience.
  - (a) CHEM 131/2 and 231/2
  - (b) PHYS 221 and 222
  - (c) PHYS 161-260/1
  - (d) BSCI 105 and 106
  - (e) ASTR 120 and 121
  - (f) AOSC 200 and 201, and any 400 level AOSC course.
  - (g) GEOL 100 and 110, and one of GEOL 322, 340, 341, 375.

\*The student-teaching pair EDCI 450-451 is 15 credits and has further prerequisites in the College of Education. In order to take these courses the student must be admitted into the College of Education. A student in the secondary education track of the mathematics major would normally be expected to receive a double major in Mathematics and Mathematics Education.

### STATISTICS TRACK

#### Major Requirements:

1. The introductory sequence MATH 140,141,240, 241 or the honors sequence MATH 340-341. Completion of MATH 340 satisfies the requirement for MATH 241; completion of MATH 340-341 satisfies the requirement for MATH 240-241-246.
2. One course from MATH 246, 341 and 414.
3. Eight additional courses, at least four of which must be taken at College Park. The eight courses are prescribed as follows:
  - (a) MATH 410. Most students are strongly encouraged to complete MATH 310 prior to attempting MATH 410
  - (b) One course from AMSC 460 and 466
  - (c) One course from MATH 401 and 405
  - (d) STAT 410
  - (e) One course from STAT 401 and 420
  - (f) STAT 430
  - (g) Two additional courses from the following list:
    - (i) Any 400-level or higher STAT courses except STAT 464
    - (ii) MATH 411, 412, 414, 424, 464
    - (iii) AMSC 477
    - (iv) BIOM 402
4. One course from CMSC 106, 114, 131, 132, ENAE 202, or ENEE 114 or PHYS 165. Student may be exempt from this requirement if he or she can demonstrate adequate programming knowledge from prior course or work experience.
5. One of the three-course supporting sequences listed in the "Traditional Track" above (part 5).

### AREAS OF STUDY

Within the Department of Mathematics there are a number of identifiable areas which students can pursue to suit their own goals and interests. They are briefly described below. Note that they do overlap and that students need not confine themselves to one of them.

1. Pure mathematics: The courses that clearly belong in this area are: MATH 402, 403, 404, 405, 406, 410, 411, 414, 430, 432, 436, 437, 445, 446, 452, 456, STAT 410, 411, 420. Students preparing for graduate school in mathematics should include MATH 403, 405, 410 and 411 (or 412) in their programs. MATH 463 (or 660) and MATH 432 (or 730) are also desirable. Other courses from the above list and graduate courses are also appropriate.
2. Secondary teaching: When selecting the seven courses for the Secondary Education Track, students are encouraged to choose the following as they are required for certification to teach mathematics at the secondary level: MATH 402 or 403, MATH 430, and STAT 400. The following additional courses are particularly suited for students preparing to teach: MATH 401, MATH 406, MATH 445, and MATH 475.

EDHD 413, EDHD 426, EDPL 301, EDCI 463, EDCI 350, EDCI 355, EDCI 457, EDCI 450 and EDCI 451 are required for certification. Before registering for the EDCI 350, EDCI 355, EDCI 457, EDCI 450, or EDCI 451 courses, students must apply for and be admitted to the College of Education's Secondary Education Program. For more information, see the College of Education website: [www.education.umd.edu/studentinfo](http://www.education.umd.edu/studentinfo).

3. Statistics: For a student with a Bachelors degree seeking work requiring some statistical background, the minimal program is STAT 400-401. To work primarily as a statistician, one should combine STAT 400-401 with STAT 430 and at least one more statistics course, most suitably, STAT 440 or STAT 450. A stronger sequence is STAT 410, 420, 430. This offers a better understanding and wider knowledge of statistics and is a general purpose program (i.e., does not specify one area of application). For economics applications, MATH 424, STAT 400, 401, 430, 440, 450, and AMSC 477 should be considered. For operations research AMSC 477 and/or STAT 411 should be added or perhaps substituted for STAT 450. To prepare for graduate work, STAT 410 and 420 give the best background, with STAT 405, 411, 430, 440, 450 added at some later stage.
4. Computational mathematics: There are a number of math courses which emphasize the computational aspects of mathematics including the use of the computer. They are AMSC 460, 466, MATH 431, 450, 456, 475 and STAT 430. Students interested in this area should take CMSC 114, 214 as early as possible, and CMSC 420, 211 are also suggested.

5. **Applied mathematics:** The courses which lead most rapidly to applications are the courses listed above in 3 and 4 and MATH 401, 412, 414, 431, 436, 462, 463, 464, and MATH/AMSC 472. A student interested in applied mathematics should obtain, in addition to a solid training in mathematics, a good knowledge of at least one area in which mathematics is currently being applied. Concentration in this area is good preparation for employment in government and industry or for graduate study in applied mathematics.

## Advising

Advising for math majors is mandatory. Students are required to sign up for an advising appointment at the math undergraduate office window (1117 Mathematics Building), beginning the week before early registration. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Department Advisor to make appropriate plans.

## Honors

The Mathematics Honors Program is designed for students showing exceptional ability and interest in mathematics. Its aim is to give a student the best possible mathematics education. Participants are selected by the Departmental Honors Committee during the first semester of their junior year. A precise statement of the requirements may be found at [www.math.umd.edu/undergraduate/opportunities](http://www.math.umd.edu/undergraduate/opportunities)

The department also offers a special department honors sequence MATH 340-341 for promising freshmen with a strong mathematical background (including calculus). Enrollment in the sequence is normally by invitation but any interested student may apply to the Mathematics Department for admission. Participants in the University Honors Program may also enroll in special honors sections of the lower-level mathematics courses (MATH 140H, 141H, 240H, 241H, 246H). Students in Math 340-341 and the special honors sections need not be math majors.

The department has in the past also offered an even more challenging honors sequence for freshmen, MATH 350-351 (previously MATH 250-251). This sequence covered MATH 410-411, MATH 240 and MATH 241 with enrichment.

The mathematics departmental honors sequence and the University Honors Program are distinct, and enrollment in one does not imply acceptance in the other.

## Combined B.S./M.A. Program in Mathematics

The Department of Mathematics offers a combined B.S./M.A. degree program for students with exceptional ability and interest in mathematics. Students enrolled in the Combined Degree Program may count up to 9 credits of coursework taken for their undergraduate degree toward the M.A. degree as well. For further information, please consult the Mathematics Department's Web Page: [www.math.umd.edu/undergraduate/majors](http://www.math.umd.edu/undergraduate/majors)

## Minors

The Department of Mathematics offers Minors in the following areas:

Actuarial Mathematics  
Statistics

A Minor offers a structured program of study outside a student's major. A student who completes a Minor program (16 credits) will receive a certificate, and the accomplishment will be noted on the student's transcript. See [www.math.umd.edu/undergraduate/opportunities](http://www.math.umd.edu/undergraduate/opportunities) for detailed information.

## Awards

**Aaron Strauss Scholarships.** Up to two are awarded each year to outstanding junior math majors. The recipient receives full remission of (in-state) tuition and fees. Applications may be obtained early in the spring semester from the Mathematics Undergraduate Office, 1117 Mathematics Building.

**Aziz Mathematics Scholarship:** A monetary award is made on the basis of mathematical excellence.

**Carol Karp Award:** A monetary award is made to a senior math major for an outstanding achievement in logic.

**Edgar Krahn Scholarship:** A monetary award is made on the basis of performance in the Maryland High School Mathematics Competition.

**Higginbotham Prize:** A monetary award is made to an outstanding junior math major in the spring.

**Milton Abramowitz Award:** A monetary award is made to an outstanding junior or senior math major in the spring.

**Outstanding Senior Award:** A monetary award is made to the outstanding graduating math major.

**Secondary Education-Mathematics (SEM) Scholarship:** Up to two are awarded in the spring to Secondary Education-Mathematics double majors.

For further information on these and other awards, consult [www.math.umd.edu/undergraduate/opportunities](http://www.math.umd.edu/undergraduate/opportunities)

## Placement in Mathematics Courses

The Department of Mathematics has a large offering to accommodate a great variety of backgrounds, interests, and abilities. The department permits students to take any course for which they have the appropriate background, regardless of formal course work. For example, students with a high school calculus course may be permitted to begin in the middle of the calculus sequence even if they do not have advanced standing. Students may obtain undergraduate credit for mathematics courses in any of the following ways: passing the appropriate CEEB Advanced Placement Examination, passing standardized CLEP examinations and through the department's Credit-by-Examination. Students are urged to consult with advisors from the Department of Mathematics to assist with proper placements.

## Statistics and Probability and Applied Mathematics

Courses in statistics and probability and applied mathematics are offered by the Department of Mathematics. These courses are open to non-majors as well as majors, and carry credit in mathematics. Students wishing to concentrate in the above may do so by choosing an appropriate program under the Department of Mathematics.

## MATHEMATICAL STATISTICS PROGRAM

### College of Computer, Mathematical and Physical Sciences

1107 Mathematics, 301-405-5061

[www.stat.umd.edu](http://www.stat.umd.edu)

Director: Smith

Professors: Freidlin, Kagan, Kedem, Liu\*\*\*, Slud, Yang

Associate Professor: Smith

Professor Emeritus: Syski

\*\*\*Joint Appointment: IPST

The Mathematical Statistics Program (within the Department of Mathematics) offers a variety of undergraduate courses to students in all disciplines as well as a graduate program for students concentrating in the study of Statistics, Probability and their application in real world problems.

In addition to an undergraduate program emphasizing Statistics that is available to majors in Mathematics, there are two minors in Statistics offered through the Department of Mathematics.

**Minor in Statistics**—for information contact Professor Paul Smith ([pjs@math.umd.edu](mailto:pjs@math.umd.edu))

**Minor in Actuarial Mathematics**—for information contact Professor Eric Slud ([evs@math.umd.edu](mailto:evs@math.umd.edu))

Each of these Minors offers a structured program of 16 credits of study outside a student's major. A student who completes a Minor in Statistics will receive a certificate, and the accomplishment will be noted on the student's transcript. For more information, see [www.math.umd.edu/undergraduate/opportunities/minors.shtml](http://www.math.umd.edu/undergraduate/opportunities/minors.shtml)

Course code: STAT

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### MEASUREMENT, STATISTICS AND EVALUATION (EDMS)

#### College of Education

1230 Benjamin Building, 301-405-3624

[www.education.umd.edu/EDMS](http://www.education.umd.edu/EDMS)

Professor and Chair: Dayton

Professors: Hancock, Lissitz, Macready, Mislevy

Associate Professor: Schafer (Emeritus)

Assistant Professor: Hendrickson

Adjunct Professor: Peng

Research Assistant Professor: Samuelson

Lecturers: Alvestad, Conley

#### For Advanced Undergraduates

The Department of Measurement, Statistics and Evaluation in the College of Education offers a 5th Year MA program for undergraduates interested in quantitative methods. The purpose of this program is to allow highly motivated undergraduates the opportunity to develop their skills in quantitative methods. Students complete a BA (or BS) in their chosen major area along with an MA in Measurement, Statistics and Evaluation in just five years.

Course Code: EDMS

### MECHANICAL ENGINEERING (ENME)

#### A. James Clark School of Engineering

2181 Engineering Classroom Building, 301-405-2410

[www.enme.umd.edu](http://www.enme.umd.edu)

Professor and Chair: Bar-Cohen

Director, Office of Undergraduate Studies: Ainane

Professors: Azarm, Balachandran, Bar-Cohen, Barker, Baz, Bernard, Christou, Dasgupta, diMarzo, Duncan, Fourny, Gupta, A., Magrab, Modarres, Mosleh, Mote, Ohadi, Pecht, Piomelli, Radermacher, Wallace, Zachariah

Associate Professors: Bernstein, Bigio, Bruck, DeVoe, Gupta, S., Han, Herold, Herrmann, Jackson, Kiger, Kim, McClusky, Ramahi, Sandborn, Schmidt, Shih, Smela, Smidts, Zhang

Assistant Professors: Balaras, Cukier, Hsieh, Yang, Yu

Lecturers: Coder, Haslach, Kirk, Rothbloom, Schultz

Emeriti: Anand, Armstrong, Berger, Buckley, Cuniff, Dally, Dieter, Holloway, Jackson, Kirk, Marks, Roush, Sanford, Sayre, Shreeve, Talaat, Walston, Yang

#### The Major

The mechanical engineering major prepares the student for the challenges of today and the future. The curriculum is one of the most up-to-date and forward-looking programs in the country. Students become involved with real-world engineering projects early on in the program through extensive interaction with engineers from industry and this interaction is continued throughout the curriculum. The coursework is now fully integrated in order to provide a seamless experience in their undergraduate education. The student graduates with the skills and the knowledge base which are necessary for success in today's marketplace and with the education necessary to adapt and succeed in the future as technology continues to change.

The mechanical engineer of today faces a more extensive range of critical problems than ever before. It is essential that the graduate be skilled not only in the traditional fundamentals of mechanical engineering such as solid mechanics, fluid mechanics, thermodynamics, heat transfer, materials engineering, electronic instrumentation and measurements, controls and design, but also in new and emerging areas such as mechatronics, smart structures, electronic packaging, communication, information systems, total quality management, reliability and electromechanical systems. Most of these topics require extensive use of modern computing hardware and software. New classrooms which are equipped with state-of-the art computers and software have been added and these facilities are used as an on-going part of many courses. The student is taught to make use of this capability and to make sound engineering judgments while analyzing the seemingly unmanageable amounts of data and information which are obtained. Attributes such as teamwork, ethics, social awareness, and leadership are emphasized in many courses.

Electives taken during the senior year prepare the graduate to choose any of a number of career paths or to select a broad-based group of electives. All students work on projects throughout their program, many of which teach the advantages of teamwork and the skills required for a team to succeed. Individual projects provide the opportunity for sometimes far-out creative thinking. In all cases, the students work closely with individual faculty members who serve as teachers, advisors, and mentors. Many undergraduate students have the opportunity to serve as Research Fellows and/or Teaching Fellows in the department.

#### Program Educational Objectives

1. The program will prepare students for successful engineering careers.
2. Students will learn the fundamentals of mathematics, physical sciences, and engineering sciences and demonstrate the applications of this knowledge to Mechanical Engineering.
3. Students will learn through course sequences focused on specific, relevant mechanical engineering careers.
4. The program will provide students with practical design experiences through partnerships with industry.
5. The program will continue to raise the expectations of all constituencies, to attract a wide variety of excellent students, and to be a nationally recognized engineering program.

#### Learning Outcomes

- a. ability to apply knowledge of math, engineering, and science
- b. ability to analyze and interpret data
- c. ability to design and conduct experiments
- d. ability to design system, component or process to meet needs
- e. ability to function on multi-disciplinary teams
- f. ability to identify, formulate, and solve engineering problems
- g. understanding of professional and ethical responsibility
- h. ability to communicate effectively
- i. broad education
- j. recognition of need and ability to engage in life-long learning
- k. knowledge of contemporary issues
- l. ability to use techniques, skills, and tools in engineering practice

#### Requirements for Major

|  | Semester     |           |
|--|--------------|-----------|
|  | Credit Hours |           |
|  | I            | II        |
| <b>Freshman Year</b>   |              |           |
| MATH 140 Calculus I  | 4            |           |
| MATH 141 Calculus II   |              | 4         |
| CHEM 135 General Chemistry for Engineers                         | 3            |           |
| PHYS 161 General Physics   |              | 3         |
| ENGL101 Introduction to Writing                                  | 3            |           |
| ENES 100 Introduction to Engineering Design                      | 3            |           |
| ENES 102 Statics   |              | 3         |
| CORE Requirements  |              | 6         |
| <b>Total Credits</b>   | <b>13</b>    | <b>16</b> |
| <b>Sophomore Year</b>  |              |           |
| MATH 241 Calculus III  | 4            |           |
| MATH 246 Differential Equations                                  |              | 3         |
| PHYS 262, 270 General Physics                                    | 4            | 4         |
| ENES 220 Mechanics of Materials                                  | 3            |           |
| ENES 221 Dynamics  | 3            |           |
| ENME 232 Thermodynamics  |              | 3         |
| ENME 271 Introduction to MATLAB                                  |              | 3         |
| CORE Requirements  | 3            | 3         |
| <b>Total Credits</b>   | <b>17</b>    | <b>16</b> |
| <b>Junior Year</b>   |              |           |
| ENME 331 Fluid Mechanics   | 3            |           |
| ENME 332 Transfer Processes                                      |              | 3         |
| ENME 350 Electronics and Instrumentation I                       |              | 3         |
| ENME 351 Electronics and Instrumentation II                      | 3            |           |
| ENME 361 Vibration, Controls, and Optimization I                 |              | 3         |
| ENME 371 Product Engineering and Manufacturing                   | 3            |           |
| ENME 382 Engineering Materials and Manufacturing Processes       | 3            |           |
| ENME 392 Statistical Methods for Product and Process Development |              | 3         |
| ENGL 393 Technical Writing                                       | 3            |           |
| CORE Requirements  |              | 3         |
| <b>Total Credits</b>   | <b>15</b>    | <b>15</b> |

### Senior Year

|   |           |           |
|---|-----------|-----------|
| ENME 462 Vibration, Controls, and Optimization II       | 3         |           |
| ENME 472 Integrated Product and Process Development II* | 3         |           |
| Technical Electives*                                    | 9         | 9         |
| CORE Requirements                                       | 3         | 3         |
| <b>Total Credits</b>                                    | <b>12</b> | <b>18</b> |

\*At least three of the four technical electives must be design.

### Sample Elective Topics

Computer-Aided Design and Manufacturing  
Packaging of Electronic Systems  
Energy Conversion  
Engineering Management  
Environmental Engineering  
Automotive Design  
Robotics  
Manufacturing  
Fiber Optics  
Micro-Electro-Mechanical Systems  
Air Pollution & Waste Technology

### Admission

Admission requirements are identical to those set by the Clark School of Engineering. Please consult chapter 1.

### Advising

All mechanical engineering students are required to meet with an advisor during registration. Contact the Undergraduate Advising Office, 2188 Engineering Classroom Building.

### Cooperative Education Program

Participation in the Cooperative Education Program is encouraged. See chapter 1 for details.

### Financial Assistance

A very limited amount of financial aid is available. Information may be obtained in the Undergraduate Advising Office.

### Honors and Awards

The Honors Program is administered through the Clark School of Engineering. Individual honors and awards are presented based on academic excellence and extracurricular activities.

### Student Organizations

Student chapters of professional societies include the American Society of Mechanical Engineers, the Society of Automotive Engineers, the Society of Manufacturing Engineers, and the American Society of Heating, Refrigeration and Air Conditioning Engineers. The mechanical engineering honor society is Pi Tau Sigma. Information regarding these societies may be obtained at 2188 Engineering Classroom Building.

Course Code: ENME

## METEOROLOGY (METO)

See Atmospheric and Oceanic Sciences elsewhere in this chapter.

## MICROBIOLOGY

Specialization courses in microbiology are offered by the Departments of Biological Sciences and Cell Biology and Molecular Genetics in the College of Chemical and Life Sciences.

## SCHOOL OF MUSIC (MUSC)

### College of Arts and Humanities

Clarice Smith Performing Arts Center, 301-405-5549  
[www.music.umd.edu](http://www.music.umd.edu)

Director: Gibson

Associate Director: De Boy

Professors: Cohen, Cossa, Dedova, DeLio, Elsing, Fischbach, Gibson, Mabbs, Major, Montgomery, Moss, Page, Provine, Robertson, Rodriguez, Wexler

Associate Professors: Balthrop, Davis, Fry, Gekker, Gowen, Haggh-Huglo, Hanninen, Hill, King, Loup, Maclary, Miller, Ross, Salness, Sloan, Sparks, Stern, Vadala, M. Wilson, Ziegler  
Assistant Professors: Hewitt, Silvey  
Instructors: Walters

Lecturers: Adams, Adkins, Ames, Baldwin, Beicken, Burris, Cavallaro, Cole, Daughtry, Eguchi, Elliston, Evans, Fidyk, Folstrom, Foster, Galvin, Gero, Guilford, Hackelman, Hanks, Hardy, Heifetz, Hendrickson, Holly, Huling, Im, Jacobson, Johnson, Kellner, Kite, Kouyate, Kunkel, Layton, McFall, McReynolds, Michnewicz, Murdock, Okamoto, Olcott, Osterloh, Ozmont, Pilzer, Randall, Sandtrom, Slowik, R. Smith, Sonneborn, Suadin, Tafoya, Teie, Trahan, Underwood, Volchok, Wagner, Weil, G. Wilson, Yazdanfor, Zimmerman

Adjunct Research Professor: Huglo

Visiting Professors: Dalley, Steinhardt, Tree, Wiley

Visiting Assistant Professors: Dueck, Ferguson

### The Major

Admission to all undergraduate music major degree programs (B.M., B.A., and B.M.E.) is based on a required performance audition before a faculty committee. Audition dates and requirements are available from the School of Music office.

Departmental advising is mandatory for all music majors every semester.

The objectives of the school are (1) to provide professional musical training based on a foundation in the liberal arts; (2) to help the general student develop sound critical judgment and discriminating taste in the performance and literature of music; (3) to prepare the student for graduate work in the field; and (4) to prepare the student to teach music in the public schools. To these ends, three degrees are offered: (a) the Bachelor of Music, with majors in theory, composition, and music performance, (b) the Bachelor of Arts, with a major in music and (c) Bachelor of Music in Music Education in conjunction with and certification from the College of Education.

Required music courses and private lessons are open to music majors who have completed the specified prerequisites, or their equivalents. Lessons are also available for qualified non-music majors, if teacher, time and facilities permit. All ensembles in the School of Music are open by audition to any student.

### The Bachelor of Music Degree

Designed for qualified students with extensive pre-college training and potential for successful careers in professional music. B.M. degree programs are offered in the following: Piano, Voice, Violin, Viola, Cello, Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Horn, Trumpet, Trombone, Tuba, Euphonium, Percussion, Harp, Composition, and Theory.

The College of Arts and Humanities requirements are waived for students majoring in B.M. Degree programs.

### Bachelor of Music Requirements:

In addition to CORE courses and music courses specific to each instrument or program listed above, B.M. students generally complete the following:

- 8 semesters of private lessons (Senior Recital in final semester)
- 8 semesters of large ensemble participation
- 8 semesters of small ensemble participation
- 4 semesters of music theory
- 3 semesters of music history
- 2 semesters of class piano (except piano majors)
- 1 semester of form and analysis
- 1 semester of conducting
- 1 semester of music literature
- 1 semester of music pedagogy
- 6 credits of music electives

The B.M. programs vary according to instrument or emphasis. Contact the School of Music for specific requirements.

### The Bachelor of Arts Degree

Designed for qualified students whose interests include a broader liberal arts experience. The College of Arts and Humanities requirement of 45 upper level credits and a foreign language to the intermediate level apply to all B.A. students. B.A. degree programs are offered in the following: Piano, Voice, Violin, Viola, Cello, Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Horn, Trumpet, Trombone, Tuba, Euphonium, Percussion, Harp and Jazz Studies.

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### Bachelor of Arts in Music Requirements:

In addition to CORE courses and music courses specific to each instrument or program listed above, B.A. students generally complete the following:

- 5 semesters of private lessons (Senior Recital in final semester)
- 5 semesters of ensemble participation
- 4 semesters of music theory
- 3 semesters of music history
- 2 semesters of class piano (except piano majors)
- 1 semester of form and analysis
- 6 credits of music electives

The B.A. programs vary according to instrument or emphasis. Contact the School of Music for specific requirements.

### The Bachelor of Music in Music Education

Designed for qualified students preparing for careers in K-12 teaching of music, the B.M. in Music Education offered by the College of Arts and Humanities carries with it a teaching certification from the College of Education. B.M. in Music Education degrees are offered with concentrations in either Instrumental Music Education or Choral-General Music Education. The requirements for a B.M. in Music Education are similar to the B.M. program plus approximately 48 credits in music education. Contact the School of Music for specific requirements.

In addition to CORE requirements, plus the above BM requirements, Music Education students generally complete the following (for a total of 134-140 credits):

- 26 credits of MUED (class instruments and field experience)
- 6 credits of EDHD (Human Development)
- 3 credits of EDPL (Policy and Leadership)
- 3 credits of EDCI 463 (Curriculum and Instruction)
- 3 credits EDCI 484 (Elem. Student Teaching)
- 3 credits EDCI 494 (Sec. Student Teaching)

### Minor in Music Performance

Eighteen credit hours consisting of the following:

- Four semesters of applied lessons (MUSP 302, 303, 402, 403)
- Four semesters of ensemble (chosen from MUSC 129, 229, 329)
- MUSC 130 Survey of Music Literature
- MUSC 140 Fundamentals of Music

Admission to the minor in music performance program is based on a required performance audition before a faculty committee. Audition dates and requirements are available from the School of Music office.

Students who fulfill Minor requirements will receive a Minor on the official transcript. Please contact the School of Music Office for more information.

### Special Programs

The School of Music cooperates with other departments in double majors, double degrees, and Individual Studies programs. Details are available on request.

Course Codes: MUED, MUET, MUSC, MUSP

## NATURAL RESOURCES MANAGEMENT PROGRAM (NRMT)

### College of Agriculture and Natural Resources

1457 Animal Sciences/Biological Resources Engineering Building  
[www.nrm.umd.edu](http://www.nrm.umd.edu)  
301-405-1198; kmonahan@umd.edu

Associate Professor and Coordinator: Kangas  
Associate Professor: Baldwin  
Assistant Professor: Tilley  
Adjunct Associate Professor: Adams

### The Program

The Natural Resources Management program provides three majors for students to focus their undergraduate study. The majors are designed to allow students to customize their degree around their strongest interest. Each curriculum consists of: 1) a common core of required courses, 2) additional required courses per each option area, and 3) 20 credits of restricted electives. The common core and additional option requirements provide the student with the breadth necessary for dealing with environmental issues, while the electives allow the student to focus on the appropriate major specialization. The elective credits are divided evenly between science and management courses. The student chooses these electives in consultation with their academic advisor from an extensive list of approved courses.

The goal of the Natural Resources Management Program is to teach students concepts dealing with the sound use and management of natural resources. In the program, the role of natural resources in economic development is balanced with concern for society and the environment.

#### Land and Water Resources Management

This concentration provides students with the knowledge and skills they need to work in such positions as Hydrologists, Environmental Consultants, Wetland Ecologists, Waste Managers, and Environmental Planners.

#### Plant and Wildlife Resources Management

This concentration provides students with the knowledge and skills they need to work in such positions as Wildlife Biologists, Nursery Managers, Fisheries Biologists, and Naturalists.

#### Environmental Education and Park Management

This concentration provides students with the knowledge and skills they need to work in such positions as Naturalists, Park Rangers, Park Superintendents, Environmental Educators, and Recreational Guides

## Natural Resources Management Curriculum

### Common Core of Requirements for all Natural Resources Management Majors

|   | Credit Hours |
|---|--------------|
| University CORE Program Requirements*                             | 40           |
| AREC 240 Introduction to Economics and the Environment*           | 4            |
| AREC 332 Introduction to Natural Resources Policy                 | 3            |
| BIOM 301 Introduction to Biometrics                               | 3            |
| BSCI 106 Principles of Biology II                                 | 4            |
| CMSC 102 Introduction to Information Technology                   | 3            |
| GEOG 201 Geography of Environmental Systems and                   | 3            |
| GEOG 211 Geography of Environmental Systems Laboratory* <b>or</b> | 1            |
| GEOL 100 Physical Geology <b>and</b>                              | 3            |
| GEOL 110 Physical Geology Laboratory*                             | 1            |
| GVPT 100 Principles of Government and Politics*                   | 3            |
| GVPT 273 Introduction to Environmental Politics <b>or</b>         | 3            |
| GVPT 306 Global Ecopolitics                                       | 3            |
| MATH 113 College Algebra with Applications* <b>or</b>             | 3            |
| MATH 115 Precalculus*   | 3            |
| NRMT 389 Internship   | 3            |
| NRMT 470 Natural Resources Management                             | 4            |

#### Additional Requirements for Option Areas A and B:

##### Land and Water Resources Management and Plant and Wildlife Resources Management

|   | Credit Hours |
|---|--------------|
| BSCI 105 Principles of Biology I  | 4            |
| BSCI 223 General Microbiology*  | 4            |
| BSCI 460/461 Plant Ecology (3) and Plant Ecology Laboratory (2) <b>or</b> | 5            |
| BSCI 361 Principles of Ecology  | 4            |
| CHEM 131/132 General Chemistry  | 4            |
| CHEM 231/232 Organic Chemistry I <b>or</b>                                |              |
| CHEM 104 Fundamentals of Organic and Biochemistry                         | 4            |
| GEOG 340 Geomorphology <b>or</b>  | 3            |
| GEOL 340 Geomorphology  | 4            |
| MATH 140 Calculus I* <b>or</b>  | 4            |
| MATH 220 Elementary Calculus I*   | 3            |
| NRSC 200 Fundamentals of Soil Science*                                    | 4            |
| PHYS 117 Introduction to Physics* <b>or</b>                               | 4            |
| PHYS 121 Fundamentals of Physics I  | 4            |
| SOCY 305 Scarcity and Modern Society                                      | 3            |

#### Additional Requirements for Option Area C:

##### Environmental Education and Park Management

|  | Credit Hours |
|--|--------------|
| ANTH 260 Introduction to Sociocultural Anthropology and Linguistics* | 3            |
| BMGT 110 Introduction to Business and Management                     | 3            |
| BMGT 360 Human Resources Management*                                 | 3            |
| BSCI 460/461 Plant Ecology (3) and Plant Ecology Laboratory (2)      | 5            |
| COMM 107 Oral Communication: Principles and Practices                | 3            |
| EDCI 473 Environmental Education                                     | 3            |
| NRMT 460 Principles of Wildlife Management                           | 3            |
| NRSC 105 Soil and Environmental Quality*                             | 3            |
| PLSC 100 Introduction to Horticulture                                | 4            |

\*May satisfy college requirements and/or a CORE requirement.

#### Restricted Electives - Chosen in Consultation of an Advisor

##### Land and Water Resource Management

|                 |    |
|-----------------|----|
| Science Area    | 10 |
| Management Area | 10 |

##### Plant and Wildlife Resource Management

|                 |    |
|-----------------|----|
| Science Area    | 10 |
| Management Area | 10 |

##### Environmental Education and Park Management

|                               |    |
|-------------------------------|----|
| Science Area                  | 10 |
| Management and Education Area | 10 |

## Advising

Advising is mandatory. See the Coordinator, 1457 Animal Sciences/Biological Resources Engineering Building, 301-405-1198.

## Student Organization

Students may join the Natural Resources Management Society. Further information is available from the Natural Resources Management program office at 1457 Animal Sciences/Biological Resources Engineering Building.

Course Code: NRMT

## NATURAL RESOURCE SCIENCES (NRSC)

### College of Agriculture and Natural Resources

2102 Plant Sciences Building  
301-405-4351, 301-405-4355  
Program Coordinator: Chris Walsh; cswalsh@umd.edu  
Program Management Specialist: Kathleen Hunt; khunt@umd.edu  
[www.nrsl.umd.edu/](http://www.nrsl.umd.edu/)

Professor and Chair: Coale  
Professors: Dernoeden, Fretz, Hill, James\*, Kenworthy, McIntosh\*, Miller, Ng, Quebedeaux, Rabenhorst, Solomos, Walsh, Weil, Weismiller  
Associate Professors: Bouwkamp, Carroll, Coleman, Costa, Deitzer, Everts, Glenn, Grybauskas, Lea-Cox, Ritter, Slaughter, J.B. Sullivan, J.H. Sullivan, Swartz, Turner, Vough  
Assistant Professors: Chang, Kratochvil, Momen, Myers, Needelman, Neel  
Lecturers: Bosmans, Nola, Steinhilber  
Professor of the Practice: Cohan  
Affiliate Professors: Fiola, Kearney, Tjaden  
Adjunct Professors: Cregan, Daughtry, Meisinger, Mucciardi, Rosenberg, Saunders, Tamboli  
Adjunct Associate Professors: Christiansen, Izaurralde, Tucker  
Adjunct Assistant Professors: Kane, Leonard, Pooler  
Professors Emeriti: Aycock, Bandel, Beste, Clark, Decker, Fanning, Gouin, Hoyert, Kuhn, Link, McClurg, Mulchi, Oliver, Shanks, Strickling, Thompson, Wiley  
\*Distinguished Scholar-Teacher

## The Major

The Department of Natural Resource Sciences and Landscape Architecture offers three undergraduate majors. Two lead to the Bachelor of Science (B.S.) degree; one in Natural Resource Sciences and the other in General Agricultural Sciences. The third major leads to a Bachelor of Landscape Architecture (B.L.A.) degree. For additional information on General Agricultural Sciences and Landscape Architecture, see the entries for those programs earlier in this chapter.

Undergraduate students enrolled in the Natural Resource Sciences major must enroll in one of the following six areas of concentration:

Conservation of Soil, Water and Environment (Area A)  
Horticulture and Crop Production (Area B)  
Landscape Management (Area C)  
Plant Science (Area D)  
Turf and Golf Course Management (Area E)  
Urban Forestry (Area F)

The Natural Resource Science major combines the principles of basic science with a thorough understanding of plant, soil and environmental sciences. This amalgamation of basic and applied sciences provides graduates with the opportunity for careers in conserving soil and water resources, improving environmental quality, increasing crop production to meet the global need for food, and in the 'Green Industry' which involves beautifying and maintaining the urban landscape.

These NRSC curricula are flexible enough to allow the student to concentrate on basic science courses that are needed for graduate work or to select courses that prepare for employment after completing a bachelor's degree. NRSC areas of concentration such as 'Plant Science' or 'Conservation of Soil, Water and the Environment' are meant to specifically prepare students for graduate studies. Students completing graduate programs in NRSC are prepared for research, teaching, and management positions with industry, international agencies, or federal and state government.

Graduates with a B.S. degree are employed by private corporations as environmental soil scientists, golf course managers, urban foresters, and agribusiness company representatives. They may also find positions in county, state, or federal government as agronomists, nutrient management specialists, or extension agents. Horticulture is a diverse profession that also has numerous employment opportunities. These range from production opportunities in fruit, vegetable, flower and nursery crops to the landscape industry. NRSC graduates are also in high demand throughout the world in traditional horticultural production, international trade and in the growing fields of biotechnology and bioremediation.

## Curriculum in Natural Resource Sciences

| NRSC Major Requirements for all Areas of Concentration                                 | Semester Credit Hours |
|--|-----------------------|
| CHEM 131/132 General Chemistry I   | 4                     |
| ENGL 101 Introduction to Writing   | 3                     |
| ENGL 393 Technical Writing   | 3                     |
| MATH 113 College Algebra with Applications, <b>or</b><br>MATH 115 Precalculus          | 3                     |
| NRSC 200 Fundamentals of Soil Science  | 4                     |
| NRSC 398 Seminar   | 1                     |
| PLSC 100 Introduction to Horticulture, <b>or</b><br>PLSC 101 Introductory Crop Science | 4                     |

*With the exception of ENGL 101 and ENGL 393, a grade of C or better in the above courses is required.*

### Area A: Conservation of Soil, Water and Environment Requirements

|  |   |
|--|---|
| CHEM 271/272 General Chemistry and Energetics  | 4 |
| CHEM 104 Fundamentals of Organic and Biochemistry, <b>or</b><br>CHEM 231/232 Organic Chemistry I               | 4 |
| COMM 100 Foundations of Oral Communication, <b>or</b><br>COMM 107 Oral Communication: Principles and Practices | 3 |
| GEOL 100/110 Physical Geology  | 4 |
| MATH 140 Calculus 1, <b>or</b><br>MATH 220 Elementary Calculus I   | 4 |
| PHYS 117 Introduction to Physics   | 4 |

### Applications & Breadth (Select three of the following)

|  |   |
|--|---|
| NRSC 413 Soil and Water Conservation                   | 3 |
| NRSC 415 GIS Application in Soil Science               | 3 |
| NRSC 423 Soil-Water Pollution                          | 3 |
| NRSC 444 Remote Sensing of Agric and Natural Resources | 3 |
| NRSC 461 Hydric and Hydromorphic Soils                 | 3 |

### Advanced Soil Science (Select three of the following)

|  |   |
|--|---|
| NRSC 411 Principles of Soil Fertility                | 3 |
| NRSC 414 Soil Morphology, Genesis and Classification | 4 |
| NRSC 417 Soil Hydrology and Physics                  | 3 |
| NRSC 421 Soil Chemistry                              | 4 |
| NRSC 422 Soil Microbiology                           | 3 |

### Practical Experience (Select at least 2 credits)

|                                |     |
|--------------------------------|-----|
| NRSC 308 Field Soil Morphology | 1-3 |
| NRSC 389 Internship            | 3   |



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### Supporting Courses (Select two of the following)

|  |   |
|--|---|
| AREC 432 Introduction to Natural Resources Policy        | 6 |
| BIOM 301 Introduction to Biometrics                      | 3 |
| ENBE 234 Principles of Erosion and Water Control (1) and |   |
| ENBE 236 Design of Drainage Systems (1) and              |   |
| ENBE 237 Design of Irrigation Systems (1)                | 3 |
| GEOL 451 Groundwater Geology                             | 3 |
| GEOL 452 Watershed and Wetland Hydrology                 | 3 |
| GEOL 340 Geomorphology (4), <b>or</b>                    |   |
| GEOG 340 Geomorphology                                   | 3 |
| NRMT 451 Water Quality: Field and Lab Analysis Methods   | 3 |
| NRSC 440 Crops, Soils and Civilization                   | 3 |
| NRSC 441 Sustainable Agriculture                         | 3 |
| NRSC 454 Environmental Issues in Plant and Soil Sciences | 3 |
| PLSC 406 Forage Crops                                    | 3 |
| PLSC 407 Cereal and Oil Crops                            | 3 |

Total CORE, NRSC and Conservation of Soil, Water  
and Environment Area **95**  
University Electives **25**

### Area B: Horticulture and Crop Production Requirements

|  |   |
|--|---|
| AREC 250 Elements of Agricultural and Resource Economics | 3 |
| AREC 306 Farm Management                                 | 3 |
| BSCI 226 Plant Taxonomy <b>or</b>                        |   |
| BSCI 490 Plant Structure                                 | 4 |
| BSCI 337 Biology of Insects                              | 4 |
| CHEM 104 Fundamentals of Organic and Biochemistry        | 4 |
| NRSC 389 Internship                                      | 3 |
| NRSC 411 Principles of Soil Fertility                    | 3 |
| PLSC 201 Plant Structure and Function                    | 4 |
| PLSC 202 Management of Horticultural Crops, <b>or</b>    |   |
| PLSC 271 Plant Propagation, <b>or</b>                    |   |
| PLSC 203 Plants, Genes and Biotechnology                 | 3 |
| PLSC 400 Environmental Plant Physiology                  | 3 |
| PLSC 420 Principles of Plant Pathology                   | 4 |
| PLSC 453 Weed Science                                    | 3 |

### Advanced Production Electives (Select four of the following)

|  |     |
|--|-----|
| BSCI 497 Insect Pests of Ornamentals and Turf                        | 3   |
| NRSC 4xx Soils Courses (Minimum of two)                              | 6-8 |
| PLSC 4xx Crops Courses (Minimum of two)                              | 6-8 |
| PLSC 305 Introduction to Turf Management                             | 3   |
| PLSC 432 Greenhouse Crop Production                                  | 3   |
| PLSC 433 Technology of Fruit and Vegetable Crop Production           | 4   |
| PLSC 452 Principles of Landscape Establishment and Maintenance       | 3   |
| PLSC 456 Nursery Crop Production                                     | 3   |
| PLSC 472 Advanced Plant Propagation                                  | 2   |
| PLSC 474 Physiology of Maturation and Storage of Horticultural Crops | 3   |

Total CORE, NRSC and Horticulture and Crop Production Area **104-108**  
University Electives **12-16**

### Area C: Landscape Management Requirements

|   |   |
|---|---|
| AREC 250 Elements of Agricultural & Resource Economics, <b>or</b> |   |
| ECON 200 Principles of Economics                                  | 3 |
| BMGT 220 Principles of Accounting I                               | 3 |
| BMGT 350 Marketing Principles and Organization                    | 3 |
| BSCI 337 Biology of Insects                                       | 4 |
| CHEM 104 Fundamentals of Organic and Biochemistry                 | 4 |
| NRSC 389 Internship   | 3 |
| LARC 140 Graphic Fundamental Studio                               | 3 |
| PLSC 200 Land Surveying   | 2 |
| PLSC 201 Plant Structure and Function                             | 4 |
| PLSC 202 Management of Horticultural Crops                        | 4 |
| PLSC 253 Woody Plants for Mid-Atlantic Landscapes I               | 3 |
| PLSC 254 Woody Plants for Mid-Atlantic Landscapes II              | 3 |
| PLSC 255 Landscape Design and Implementation                      | 4 |
| PLSC 271 Plant Propagation  | 3 |
| PLSC 305 Introduction to Turf Management, <b>or</b>               |   |
| NRSC 411 Principles of Soil Fertility                             | 3 |
| PLSC 320 Principles of Site Engineering                           | 4 |
| PLSC 321 Landscape Structures and Materials                       | 3 |
| PLSC 361 Commercial Principles of Landscape Management            |   |
| PLSC 420 Principles of Plant Pathology                            | 4 |
| PLSC 452 Principles of Landscape Establishment and Maintenance    | 3 |
| LARC 160 Introduction to Landscape Architecture                   | 3 |

Total CORE, NRSC and Landscape Management Area **105**  
University Electives **15**

### Area D: Plant Science Requirements

|   |   |
|---|---|
| BSCI 337 Biology of Insects                   | 4 |
| BSCI 442 Plant Physiology, <b>or</b>          |   |
| CHEM 271/272 General Chemistry and Energetics | 4 |
| CHEM 231/232 Organic Chemistry I              | 4 |
| MATH 140 Calculus I, <b>or</b>                |   |
| MATH 220 Elementary Calculus I                | 3 |
| PHYS 121 Fundamentals of Physics I            | 4 |
| PLSC 201 Plant Structure and Function         | 4 |
| PLSC 202 Management of Horticultural Crops    | 4 |
| PLSC 203 Plants, Genes and Biotechnology      | 3 |
| PLSC 271 Plant Propagation                    | 3 |
| PLSC 399 Special Problems in Plant Science    | 3 |
| PLSC 400 Environmental Plant Physiology       | 3 |
| PLSC 420 Principles of Plant Pathology        | 4 |
| PLSC 472 Advanced Plant Propagation           | 2 |

### Advanced Plant Science Electives (Select one of the following)

|  |   |
|--|---|
| NRSC 400 Water and Nutrient Planning for the Nursery and             |   |
| Greenhouse Industry  | 3 |
| PLSC 403 Crop Breeding   | 3 |
| PLSC 432 Greenhouse Crop Production                                  | 3 |
| PLSC 433 Technology of Fruit and Vegetable Production                | 4 |
| PLSC 452 Principles of Landscape Establishment and Maintenance       | 3 |
| PLSC 456 Nursery Crop Production                                     | 3 |
| PLSC 474 Physiology of Maturation and Storage of Horticultural Crops | 3 |

### Advanced Science Electives (Select one of the following)

|  |   |
|--|---|
| BCHM 261 Elements of Biochemistry, <b>or</b> |   |
| BCHM 461 Biochemistry I                      | 3 |
| BSCI 435 Plant Biochemistry                  | 4 |
| NRSC 411 Principles of Soil Fertility        | 3 |
| NRSC 417 Soil Hydrology and Physics          | 3 |
| NRSC 421 Soil Chemistry                      | 4 |
| PHYS 122 Fundamentals of Physics II          | 3 |

Total CORE, NRSC and Plant Science Area **101-104**  
University Electives **16-19**

### Area E: Turf and Golf Course Management Requirements

|   |   |
|---|---|
| BSCI 105 Principles of Biology I                      | 4 |
| BSCI 106 Principles of Biology II                     | 4 |
| BSCI 337 Biology of Insects                           | 4 |
| CHEM 104 Fundamentals of Organic and Biochemistry     | 4 |
| COMM 100 Foundations of Oral Communication, <b>or</b> |   |
| COMM 107 Oral Communication: Principles and Practices | 3 |
| ENBE 237 Design of Irrigation Systems                 | 1 |
| NRSC 389 Internship                                   | 3 |
| NRSC 411 Principles of Soil Fertility                 | 3 |
| PHYS 117 Introduction to Physics, <b>or</b>           |   |
| PHYS 121 Fundamentals of Physics I                    | 4 |
| PLSC 305 Introduction to Turf Management              | 3 |
| PLSC 400 Environmental Plant Physiology               | 3 |
| PLSC 401 Pest Management Strategies for Turfgrass     | 3 |
| PLSC 402 Sports Turf Management                       | 3 |
| PLSC 410 Commercial Turf Maintenance and Production   | 3 |
| PLSC 420 Principles of Plant Pathology                | 4 |
| PLSC 453 Weed Science                                 | 3 |

Total CORE, NRSC and Turf and Golf Course Management Area **99**  
University Electives **21**

### Area F: Urban Forestry Requirements

|   |   |
|---|---|
| AREC 240 Introduction to Economics and the Environment      | 3 |
| BMGT 220 Principles of Accounting I                         | 3 |
| BSCI 337 Biology of Insects                                 | 4 |
| BSCI 497 Insect Pests of Ornamentals & Turf                 | 3 |
| CHEM 104 Fundamentals of Organic and Biochemistry <b>or</b> |   |
| CHEM 271/272 General Chemistry and Energetics               | 4 |
| LARC 160 Introduction to Landscape Architecture             | 4 |
| NRSC 171 Introduction to Urban Forestry                     | 3 |
| NRSC 389 Internship   | 3 |
| NRSC 411 Principles of Soil Fertility                       | 3 |
| NRSC 471 Forest Ecology                                     | 3 |
| NRSC 472 Capstone - Urban Forest Project Management         | 3 |
| PLSC 201 Plant Structure and Function                       | 4 |
| PLSC 253 Woody Plants for Mid-Atlantic Landscapes I         | 3 |
| PLSC 254 Woody Plants for Mid-Atlantic Landscapes II        | 3 |
| PLSC 272 Principles of Arboriculture                        | 3 |
| PLSC 361 Commercial Principles of Landscape Management      | 3 |
| PLSC 400 Environmental Plant Physiology                     | 3 |
| PLSC 420 Principles of Plant Pathology                      | 4 |

### Suggested Core Courses and Electives<sup>1</sup>

|  |           |
|--|-----------|
| BIOM 301* Introduction to Biometrics                         | 3         |
| BSCI 460 Plant Ecology (3) <b>or</b>                         |           |
| BSCI 460 & 461 Plant Ecology Lecture and Lab                 | 5         |
| CHEM 231/232* Organic Chemistry I                            | 4         |
| CHEM 243* Organic Chemistry II                               | 4         |
| COMM 107 Oral Communication: Principles and Practices        | 3         |
| GEOG 201 Geography of Environmental Systems                  | 3         |
| GEOG 347 Introduction to Biogeography                        | 3         |
| GVPT 170 Introduction to American Government                 | 3         |
| GVPT 273 Introduction to Environmental Politics              | 3         |
| LARC 450 Environmental Resources                             | 3         |
| MATH 220* Elementary Calculus I                              | 3         |
| NRMT 460 Principles of Wildlife Management                   | 3         |
| NRMT 461 Urban Wildlife Management                           | 3         |
| NRMT 489B Field Experience: Park Management                  | 1         |
| NRSC 413 Soil & Water Conservation                           | 3         |
| NRSC 415 GIS Application in Soil Science                     | 3         |
| NRSC 444 Remote Sensing of Agriculture and Natural Resources | 3         |
| NRSC 474 Silviculture  | 4         |
| PHYS 121* Fundamentals of Physics I                          | 4         |
| PHYS 122* Fundamentals of Physics II                         | 4         |
| <b>or the following two-semester sequence:</b>               |           |
| PHYS 141* Principles of Physics                              | 4         |
| PHYS 142* Principles of Physics                              | 4         |
| PLSC 200 Surveying   | 2         |
| PLSC 203 Plants, Genes and Biodiversity                      | 3         |
| PLSC 320 Principles of Site Engineering                      | 3         |
| PLSC 400* Environmental Plant Physiology                     | 3         |
| PLSC 473 Woody Plant Physiology                              | 3         |
| SOCY 100 Introduction to Sociology                           | 3         |
| SOCY 105 Introduction to Contemporary Social Problems        | 3         |
| SOCY 305 Scarcity and Modern Society                         | 3         |
| SPAN 223 United States Latino Culture                        | 3         |
| URSP 100 Challenge of the Cities                             | 3         |
| URSP 320 Planning of the Contemporary City                   | 3         |
| URSP 372 Diversity and the City                              | 3         |
| Total CORE, NRSC and Urban Forestry Area                     | <b>99</b> |
| University Electives   | <b>21</b> |

<sup>1</sup>**Note:** Courses with an asterisk are suggested electives for students planning on graduate study in Forestry.

### Minor in Landscape Management

The Landscape Management minor provides students with a foundation in plant sciences and business management. The required science courses lead to an integrative understanding of plant growth and development and the plant's responses to its environment. These courses also teach students the skills needed to recommend best management practices and to identify plant abnormalities in the landscape. The business courses in this minor foster an understanding of the business structure, human resource management and financial management associated with landscape management companies.

All courses presented in this minor must be passed with a grade of C or better. To complete this minor, students will be expected to complete an 18-19 credit course sequence. Students should also be aware that many of the courses in this minor list PLSC100, Introduction to Horticulture, as a prerequisite.

#### Advising system for the minor:

The NRSL Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year.

Landscape Management Advisors (Dr. Steven Cohan, Dr. Chris Walsh)

#### Curriculum:

|  |   |
|--|---|
| PLSC 253 Woody Plants for Mid-Atlantic Landscapes I            | 3 |
| PLSC 254 Woody Plants for Mid-Atlantic Landscapes II           | 3 |
| PLSC 305 Introduction to Turf Management                       | 3 |
| PLSC 361 Commercial Principles of Landscape Management         | 3 |
| PLSC 452 Principles of Landscape Establishment and Maintenance | 3 |

Select one of the following courses:

|  |   |
|--|---|
| AREC 240 Introduction to Agriculture and the Environment | 4 |
| AREC 250 Elements of Agricultural and Resource Economics | 3 |
| AREC 306 Farm Management                                 | 3 |
| BMGT 220 Principles of Accounting I                      | 3 |

Total Credits: A minimum of 18 or 19 credits is required to complete this minor. (Depending on which AREC or BMGT course is chosen)

A student may use a maximum of six credits (or two courses) to satisfy the requirements of both a major and a minor. In the event that more than six credits of coursework listed above are required in the student's major, he or she should contact the Landscape Management faculty advisor for course substitutions.

This minor is particularly relevant to students who are interested in pursuing a career in the landscape industry. Landscape architecture, environmental science and policy, and life science majors can readily complete these minor requirements within their four-year programs.

Students from the business school and social sciences who are seeking managerial careers in this rapidly-expanding service industry would also find this minor to be relevant.

### Minor in Soil Science

This minor will provide students with a sophisticated understanding of the soil resource, its development, characteristics, and principles for its use and management. Building on a basic introduction to the broad field of soil science, the program is completed by adding four or five upper division soils courses balanced between underlying principles and field applications.

All courses presented for the minor must be passed with a grade of C or better. Declared majors in the Conservation of Soil Water and Environment Area of Concentration of NRSC or the Land and Water option in ENSP may not also minor in Soil Science.

#### Advising system for the minor:

The NRSL Department has mandatory faculty advising for each of its major and minor programs. Students are required to meet with their faculty advisor at least twice a year.

Soil Science Advisors (Dr. Ray Weil, Dr. Robert Hill)

#### Curriculum:

NRSC 200 Fundamentals of Soil Science (4)

Select 13 credits from the ten courses listed below. At least two courses must be from Group A.

#### GROUP A – Underlying Principles

|  |   |
|--|---|
| NRSC 411 Principles of Soil Fertility                | 3 |
| NRSC 414 Soil Morphology, Genesis and Classification | 4 |
| NRSC 417 Soil Hydrology and Physics                  | 3 |
| NRSC 421 Soil Chemistry                              | 4 |
| NRSC 422 Soil Microbiology                           | 3 |

#### GROUP B - Applications

|   |   |
|---|---|
| NRSC 308 Field Soil Morphology            | 1 |
| NRSC 413 Soil and Water Conservation      | 3 |
| NRSC 415 GIS Applications in Soil Science | 4 |
| NRSC 423 Soil-Water Pollution             | 3 |
| NRSC 461 Wetland Soils                    | 3 |

Total Credits: A minimum of 17 credits is required to complete this minor.

Students attempting this minor will need MATH 113 or higher. There are a total of 17 required credits in NRSC classes, plus a 4 credit chemistry prerequisite. Depending on the pre-requisites needed and the optional courses selected and pre-requisites, students will take between 17 and 24 credits.

This minor is particularly relevant to students majoring in Agricultural and Resource Economics, Geology, Geography, Environmental Science and Policy, Biology, Biochemistry, Chemistry, Anthropology, Architecture, Agriculture Science and Technology, Horticulture and Crop Production, Animal Science, Landscape Architecture, Parks and Planning, Biological Resource Engineering, Civil Engineering, and Environmental Engineering.

### Fieldwork and Internship Opportunities

Internships with scientists are available at nearby federal and state agencies. Numerous internships also exist and can be readily arranged for students interested in private sector employment.

### Student Organizations

The Agronomy Club and the student chapter of the Soil and Water Conservation Society provide students with opportunities for professional activities. The department sponsors student teams that participate in regional and national contests. These teams prepare in the following areas: soil judging, weeds and crops, and landscape contracting.

## 142 Nutrition and Food Science

The Horticulture Club provides students with opportunities to get involved with on-campus activities. The main goals of the club are traveling and seeing a broad perspective of horticulture, as well as being active in the community in environmental and social programs.

### Scholarships

Numerous scholarships and awards are available to NRSC students. Contact the Associate Dean's office at 301-405-2078 for additional information. In addition, the Department also maintains a listing of scholarships. Contact Kathy Hunt in 2102 Plant Sciences, 301-405-4355.

## NUTRITION AND FOOD SCIENCE (NFSC)

### College of Agriculture and Natural Resources

0112 Skinner Building, 301-405-4520 - fax: 301-314-3314

[www.agnr.umd.edu/nfsc](http://www.agnr.umd.edu/nfsc)

Chair: Parish

Professors: Bean, Castonguay, Lei, Parish

Associate Professors: Jackson, Kantor, Lo, Meng, Yu

Assistant Professors: Magnuson, Sahyoun

Lecturer: Brenowitz

Adjunct Professor: DeLuca, Hansen

Adjunct Associate Professor: McKenna

Research Professor: Lineback

Emeriti: Ahrens, Moser-Veillon†, Schlimme, Wiley

†Distinguished Scholar-Teacher

The department offers three areas of emphasis: dietetics, food science, and nutritional science. Each program provides for competencies in several areas of work; however, each option is designed specifically for certain professional careers.

### Requirements for Major

The **Dietetics** major develops an understanding and competency in food, nutrition, dietetics management, clinical nutritional care, nutrition education, and community nutrition. The dietetics program is approved by the Commission on Accreditation for Dietetics Education, and qualifies students, after completion of a post-baccalaureate internship, to sit for the national exam to become a registered dietitian.

The **Food Science** major is concerned with the application of the fundamental principles of the physical, biological, and behavioral sciences and engineering to understand the complex and heterogeneous materials recognized as food. The food science program is approved by the Institute of Food Technologists and prepares students for careers in food industry and food safety.

The **Nutritional Science** major emphasizes the physical and biological sciences in relation to nutrition and the development of laboratory skills in these areas. Students in this major frequently elect to go on to graduate or medical school.

**Grades.** All students are required to earn a grade of C or better in courses applied toward satisfaction of the major. This includes all required courses with a prefix of NFSC, as well as certain required courses in supporting fields. A list of these courses for each program may be obtained from the department office.

### Program Requirements

#### I. Dietetics

|   |           |
|---|-----------|
| a. Major Subject Courses                                  |           |
| NFSC 100 Elements of Nutrition                            | 3         |
| NFSC 112 Food Science and Technology                      | 3         |
| NFSC 250 Science of Food                                  | 4         |
| NFSC 315 Nutrition During the Life Cycle                  | 3         |
| NFSC 350 Food Service Operations                          | 5         |
| NFSC 380 Nutritional Assessment                           | 3         |
| NFSC 440 Advanced Human Nutrition                         | 4         |
| NFSC 460 Medical Nutrition Therapy                        | 4         |
| NFSC 470 Community Nutrition                              | 3         |
| NFSC 491 Issues and Problems in Dietetics (CORE capstone) | 3         |
| <b>Subtotal</b>   | <b>35</b> |

|  |            |
|--|------------|
| b. Supporting Courses  |            |
| MATH 113 Elementary Algebra <b>or</b>                          |            |
| MATH 115 Precalculus   | 3          |
| CHEM 131/132 General Chemistry I with Lab                      | 4          |
| CHEM 231/232 Organic Chemistry I with Lab                      | 4          |
| CHEM 241/242 Organic Chemistry II with Lab                     | 4          |
| CHEM 271/272 General Chemistry and Energetics                  | 4          |
| BSCI 105 Principles of Biology I                               | 4          |
| BSCI 230 Cell Biology and Physiology                           | 4          |
| BSCI 440 Mammalian Physiology                                  | 4          |
| BSCI 223 General Microbiology                                  | 4          |
| SOCY 100 Introduction to Sociology                             | 3          |
| PSYC 100 Introduction to Psychology                            | 3          |
| EDMS 451 Introduction to Educational Statistics <b>or</b>      |            |
| BIOM 301 Introduction to Biometrics                            | 3          |
| BCHM 461 Biochemistry I  | 3          |
| BCHM 462 Biochemistry II                                       | 3          |
| ENGL 101 Introduction to Writing                               | 3          |
| ENGL 393 Technical Writing <b>or</b> ENGL 391 Adv. Composition | 3          |
| BMGT 360 Human Resource Management                             | 3          |
| BMGT 364 Management and Organization Theory                    | 3          |
| Additional CORE program courses                                | 18         |
| Restricted Elective  | 3          |
| Electives  | 2          |
| <b>Subtotal</b>  | <b>85</b>  |
| <b>TOTAL CREDITS</b>   | <b>120</b> |

#### II. Food Science

|  |           |
|--|-----------|
| a. Major Subject Courses                                       |           |
| NFSC 100 Elements of Nutrition                                 | 3         |
| NFSC 112 Food Science and Technology                           | 3         |
| NFSC 250 Science of Food                                       | 4         |
| NFSC 398 Seminar   | 1         |
| NFSC 412 Food Processing Technology                            | 4         |
| NFSC 421 Food Chemistry  | 3         |
| NFSC 422 Food Product Research and Development (CORE capstone) | 3         |
| NFSC 423 Food Chemistry Laboratory                             | 3         |
| NFSC 430 Food Microbiology                                     | 2         |
| NFSC 431 Food Quality Control                                  | 4         |
| NFSC 434 Food Microbiology Laboratory                          | 2         |
| NFSC 450 Food and Nutrient Analysis                            | 3         |
| <b>Subtotal</b>  | <b>35</b> |

|   |            |
|---|------------|
| b. Supporting Courses                         |            |
| MATH 113 Elementary Algebra <b>or</b>         |            |
| MATH 115 Precalculus                          | 3          |
| MATH 220 Elementary Calculus I                | 3          |
| MATH 221 Elementary Calculus II               | 3          |
| CHEM 131/132 General Chemistry I with Lab     | 4          |
| CHEM 231/232 Organic Chemistry I              | 4          |
| CHEM 241/242 Organic Chemistry II             | 4          |
| CHEM 271/272 General Chemistry and Energetics | 4          |
| BCHM 463 Biochemistry of Physiology           | 3          |
| BSCI 105 Principles of Biology                | 4          |
| ENBE 414 Mechanics of Food Processing         | 4          |
| BSCI 223 General Microbiology                 | 4          |
| PHYS 121 Fundamentals of Physics I            | 4          |
| ENGL 101 Introduction to Writing              | 3          |
| ENGL 393 Technical Writing                    | 3          |
| BIOM 301 Introduction to Biometrics           | 3          |
| Additional CORE program requirements          | 24         |
| Restricted electives                          | 3          |
| Electives                                     | 5          |
| <b>Subtotal</b>                               | <b>85</b>  |
| <b>TOTAL CREDITS</b>                          | <b>120</b> |

#### III. Nutritional Science

|   |           |
|---|-----------|
| a. Major Subject Courses                                    |           |
| NFSC 100 Elements of Nutrition                              | 3         |
| NFSC 112 Food Science and Technology                        | 3         |
| NFSC 315 Nutrition during the Life Cycle                    | 3         |
| NFSC 421 Food Chemistry                                     | 3         |
| NFSC 440 Advanced Human Nutrition                           | 4         |
| NFSC 450 Food and Nutrient Analysis                         | 3         |
| NFSC 495 Nutrition Research <b>or</b> CORE Advanced Studies | 3         |
| <b>Subtotal</b>   | <b>22</b> |

|   |            |
|---|------------|
| b. Supporting Courses                         |            |
| MATH 113 Elementary Algebra OR                |            |
| MATH 115 Precalculus                          | 3          |
| MATH 220 Elementary Calculus I                | 3          |
| CHEM 131/132 General Chemistry I              | 4          |
| CHEM 231/232 Organic Chemistry I              | 4          |
| CHEM 241/242 Organic Chemistry II             | 4          |
| CHEM 271/272 General Chemistry and Energetics | 4          |
| BSCI 105 Principles of Biology I              | 4          |
| BSCI 222 Genetics                             | 4          |
| BSCI 230 Cell Biology and Physiology          | 4          |
| BSCI 440 Mammalian Physiology                 | 4          |
| PHYS 121 Fundamentals of Physics I            | 4          |
| BCHM 461 Biochemistry I                       | 3          |
| BCHM 462 Biochemistry II                      | 3          |
| BCHM 464 Biochemistry Laboratory I            | 2          |
| BCHM 465 Biochemistry III                     | 3          |
| BSCI 223 General Microbiology                 | 4          |
| BIOM 301 Introduction to Biometrics           | 3          |
| ENGL 101 Introduction to Writing              | 3          |
| ENGL 393 Technical Writing                    | 3          |
| Additional CORE program requirements          | 24         |
| Restricted elective                           | 3          |
| Electives                                     | 5          |
| <b>Subtotal</b>                               | <b>98</b>  |
| <b>TOTAL CREDITS</b>                          | <b>120</b> |

## Advising

Department advising is mandatory. When planning a course of study, students must consult the Undergraduate Catalog for the year they entered the program and also see an appropriate departmental advisor. Information on advising may be obtained by calling the department office, 301-405-4520.

## Student Organizations

The NFSC Department has two active undergraduate clubs: the Food and Nutrition (FAN) club and the Food Technology club, which sponsor outreach activities and speakers on career-related topics, and participate in a variety of social activities. Call 301-405-4520 for more information.

Course Codes: NFSC

## OPERATIONS MANAGEMENT

For information, consult the Robert H. Smith School of Business entry in chapter 6.

## PHILOSOPHY (PHIL)

### College of Arts and Humanities

1124 Skinner Building, 301-405-5689/90

Professor and Chair: Carruthers  
 Professors: Bub, Cherniak, Darden, Greenspan, Horty, Leshner, Levinson, Morris, Pietroski, Rey, Svenonius  
 Associate Professors: Brown (Emeritus), Kerstein, Lichtenberg, Manekin, Morreau, Odell, Stairs  
 Assistant Professors: Frisch, Schroeder  
 Affiliate Professors: Brush, Crocker, Fullinwider, Galston, Hornstein, Levine, Li, Sagoff, Segal, Wachbroit, Wasserman  
 Adjunct Professors: Berkovitz, Dwyer, Levine, Mattingly, Rynasiewicz, Schaffner, Silberstein, Wallace

### The Major

The study of philosophy develops students' reasoning and expository skills and increases their understanding of the foundations of human knowledge and value. The department views philosophy as an activity rather than a body of doctrine and students can expect to receive training in clear thinking, inventive synthesis, and precise expression. For some, this will serve as preparation for graduate studies in philosophy. However, philosophical skills are useful in professions such as law, medicine, government, business management, and in any field that demands intellectual rigor. The department offers a wide range of courses, including several that deal with the philosophy of various disciplines outside philosophy itself.

## Requirements for Major

- (1) A total of at least 36 hours (twelve courses) in philosophy, not counting Internship course (PHIL 386).
- (2) At least six courses numbered 300 or above, of which at least two must be numbered 400 or above; at least one course in logic at any level; at least two courses numbered 200 or above in the history of pre-twentieth-century philosophy; at least two courses numbered 200 or above in value theory (including aesthetics and political philosophy as well as ethics); at least two courses numbered 200 or above in metaphysics or epistemology (including philosophy of science, philosophy of mind, and philosophy of religion, as well as metaphysics and theory of knowledge).
- (3) A grade of C or higher in each course counted towards the Major.

Fifteen hours in a supporting area; the courses do not all have to be in the same department, but they should reflect a coherent program of study. The supporting area must be chosen in consultation with a departmental advisor. For further information, students should consult the undergraduate handbook on the philosophy department's website.

Requirements for the Philosophy major include a minimum of 45 upper-level credits completed and the foreign-language requirement of the College of Arts and Humanities.

Departmental advising is mandatory for second-semester sophomores and seniors.

## The Minor

The study of philosophy develops students' reasoning and expository skills and increases their understanding of the foundations of human knowledge and value. The department views philosophy as an activity rather than a body of doctrine and students can expect to receive training in clear thinking, inventive synthesis, and precise expression. For some, this will serve as preparation for graduate studies in philosophy. However, philosophical skills are useful in professions such as law, medicine, government, business management, and in any field that demands intellectual rigor. The department offers a wide range of courses, including several that deal with the philosophy of various disciplines outside philosophy itself.

## Requirements for the Minor

1. A total of 18 hours (six courses) in philosophy, not counting PHIL 386.
2. At least three courses numbered 300 or above; at least one course numbered 200 or above in the history of pre-twentieth-century philosophy; at least one course numbered 200 or above in value theory (including aesthetics and political philosophy as well as ethics); at least one course numbered 200 or above in metaphysics or epistemology (including philosophy of science, mind, and philosophy of religion, as well as metaphysics and theory of knowledge).
3. A grade of C or higher in each course counted toward the minor requirement.

Course Code: PHIL

## PHYSICAL EDUCATION

See Kinesiology elsewhere in this chapter.

## PHYSICAL SCIENCES PROGRAM

### College of Computer, Mathematical, and Physical Sciences

1120 Physics Building, 301-405-5979

[www.physics.umd.edu/psci](http://www.physics.umd.edu/psci)

E-mail: [phys-ugradinfo@physics.umd.edu](mailto:phys-ugradinfo@physics.umd.edu)

Chair: Einstein  
 Astronomy: Deming  
 Chemistry: Montague-Smith  
 Computer Science: Ozga  
 Geology: Merck  
 Engineering: Salamanca-Riba  
 Mathematics: Fleming  
 Meteorology: Hudson  
 Physics: Einstein  
 Advisor: Gleason

## 144 Physical Sciences Program

### Purpose

The role of the Physical Sciences Program (PSCI) is to develop skills in the areas of analytic thinking, problem solving, understanding systems, and multidisciplinary perspectives. In a world of increasing technical complexity, knowledge of the physical sciences helps individuals to evaluate scientific claims and to make informed decisions about industrial and medical technology, environmental concerns, intellectual property, etc. The Program helps prepare students for a variety of careers requiring a broad scientific background, including meteorology, earth sciences, scientific computation, science writing/journalism, patent law, military/industrial leadership, technical sales, and public policy. The Program can also be useful for those planning science-oriented or technical work in the urban field; Urban Studies courses should be taken as electives. Students contemplating the Program as a basis for preparation for secondary school science teaching are advised to consult the Science Teaching Center staff of the College of Education for additional requirements for teacher certification.

Students should be advised that there are specific requirements to be eligible to take the exam administered by the U.S. Patent and Trademark Office. Students should consult the Requirements Bulletin at the USPTO website: [www.uspto.gov/web/offices/dcom/olia/oed/grb9904.htm](http://www.uspto.gov/web/offices/dcom/olia/oed/grb9904.htm). While Physical Sciences is not one of the listed majors in Category A, PSCI students should be able to qualify under Category B, options 1 or 4.

The Physical Sciences Program consists of a basic set of courses in physics, chemistry and mathematics, followed by a variety of courses chosen from these and related disciplines: astronomy, geology, meteorology, computer science, and the engineering disciplines. Emphasis is placed on a broad program as contrasted with a specialized one.

Students are advised by members of the Physical Sciences Committee. This committee is composed of faculty members from each of the represented disciplines. The selection of a primary advisor depends upon the interest of the students. Usually the student will choose to work with one of the committee members representing the discipline the student has selected as the primary area of concentration to satisfy the distributive requirements of the program. Two secondary area advisors are also required.

### Curriculum

The curriculum of the Physical Sciences Program has a high degree of flexibility to allow selection of courses to meet the interests and goals of the individual student. To earn a Bachelor of Science degree in the Physical Sciences Program, a student must satisfactorily complete the following requirements:

1. Basic Requirements. Courses are required in four foundational disciplines.
  - a) Chemistry: CHEM 135/136 and 231/232 (8 credits)
  - b) Mathematics: MATH 140, 141 and one other math course for which MATH 141 is a prerequisite (11 or 12 credits)
  - c) Physics: PHYS 161, 262, 263 (11 credits) or PHYS 171, 174 272, 273, 275, 276 (14 credits). Students desiring a strong background in physics should take the 171-276 sequence, which is required of physics majors and offers much smaller classes than the 161-263 sequence.
  - d) Computer Programming: CMSC 106, PHYS 165, ENEE 114, or other courses with approval of the PSCI committee. Students who choose CMSC as an area of concentration will need to complete additional lower-level CMSC courses.
2. Distributive Requirements. Beyond the basic courses, students complete 24 upper level (300-400) distributive credits. All students must complete 18 of the 24 distributive credits as physical sciences majors. The distributive credits must be divided among three areas of concentration with at least 6 credits in each area. The areas of concentration include the disciplines of chemistry, physics, mathematics (including statistics), astronomy, geology, meteorology, computer science or one of the engineering disciplines. Students who wish to select electrical engineering need the permission of the Assistant Dean in the College of Engineering.
3. General Major Requirements. Programs in the Physical Sciences are usually sequential in nature, and students must be careful to satisfy prerequisites in all cases. Students are advised to develop a physical sciences curriculum with the help of the Physical Sciences advisors as soon as possible, but preferably by the end of the sophomore year.
  - a) All Physical Science students must have a planned program of study approved by the Physical Sciences Committee. In no case shall committee approve a program which has less than 18 credits in the three distributive areas of the Physical Sciences program to be completed, at the time the program is submitted.

b) A grade of "C" or better must be earned in all program courses (basic prerequisite and distributive requirement courses).

4. The CORE Liberal Arts and Sciences Studies Program. The requirements of the CORE program are described under the "Academic Regulations and Requirements" section of this catalog. The program requires a total of 43 credits.
5. Elective Requirements. In addition to meeting the requirements stated above, each physical sciences student must plan a sufficient number of elective courses to meet the minimum 120 credits needed for graduation.
6. Students are expected to complete an internship related to their career interests.

Engineering courses used for one of the options must all be from the same department, e.g., all must be ENG courses or a student may use a combination of courses in ENNU and ENMA, which are both offered by the Department of Materials and Nuclear Engineering; courses offered as engineering sciences, ENES, will be considered as a department for these purposes. Selection of ENEE courses is by Permission Only.

Certain courses offered in the fields included in the program are not suitable for Physical Science majors and cannot count as part of the requirements of the program. These include any courses corresponding to a lower level than the basic courses specified above (e.g. MATH 115), some of the special topics courses designed for non-science students, as well as other courses. A listing of "excluded" courses is on the last page.

### Science Journalism Specialization

Science and technology are major and ever-growing forces in our economy, and science related issues are prominent among forefront public-policy issues regularly encountered in the mass media and in the political arena. Thus, there is a great need for journalists with training in science. The Science Journalism specialization offers a broad but rigorous background in science as well as strong journalism training.

1. Basic requirements: same as those stated above.
2. Upper-level Distributive Requirements: Beyond the basic courses, students complete 21 upper level (300-400) distributive credits. All students must complete 18 of the 21 distributive credits as physical sciences majors. The distributive credits must be divided among three areas of concentration with at least 6 credits in each area.

The areas of concentration include the disciplines of chemistry, physics, mathematics (including statistics), astronomy, geology, meteorology, computer science or one of the engineering disciplines. Students who wish to select electrical engineering need the permission of the Assistant Dean in the School of Engineering.

3. In addition, students taking the Science Journalism specialization are required to complete the following lower- and upper-level courses in Journalism: JOUR 201, JOUR 202, JOUR 300, JOUR 320, JOUR 380, JOUR 396, AND JOUR 400. (Alternatively, students interested in broadcast journalism could substitute JOUR 360 for JOUR 320.)
4. The Committee believes that good preparation for Science Journalism in today's world should include a substantial exposure to introductory biology, such as provided in BSCI 105-106; thus, these two courses are strongly recommended. Students should consult early with the PSCI advisor to set up a schedule of courses that includes BSCI 105-106 in a way that proceeds efficiently through the lower-level PSCI requirements while avoiding a semester with 15 credits of science courses or with several courses having time consuming labs and computer projects.
5. The regular University requirements for graduation stated above apply.

### Advising

Advising for undergraduates is available throughout the year in Room 1120 PHY. For early registration, advising is mandatory; students should check Testudo for their early registration date and should sign up for an appointment in Room 1120 PHY. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Program Advisor to make appropriate plans.

## Honors Program

The Physical Sciences Honors Program offers students the opportunity for research and independent study, and will lead to a BS degree with Honors or High Honors. The requirements are:

- Overall grade point average of 3.0 or better.
- Physical Sciences courses grade point average of 3.2 or better.
- An independent study course in the Physical Sciences Program - three credit minimum which may be distributed over two semesters (e.g. Astronomy 399 or 498, Chemistry 399, Computer Science 498, Geology 499, Mathematics 498, Meteorology 499 and Physics 399 or 499B).
- An honors thesis summarizing independent research submitted to the Physical Sciences Committee.
- An oral examination concerning thesis and related subjects. The thesis advisor and two other faculty members (at least one a member of the Physical Sciences Committee) will comprise the examining committee.

## Selection of College

Students may elect to receive their degrees from either the College of Computer, Mathematical and Physical Sciences, the College of Agriculture and Natural Resources, or the College of Chemical and Life Sciences. College of CMPS students have no further requirements to fulfill beyond those stated here plus the General Education Requirements. Agriculture and Natural Resources and Life Sciences students must also satisfy their respective College requirements.

## Approval of Program Plans

All students must submit a program plan outlining what courses they plan to take to complete their program. These should include both the core courses and the distributive 300-400 level courses of 24 credits beyond the core.

In preparing such a program plan, students should keep in mind that the Physical Sciences Committee will look for courses that will support the purpose or goals of the program. These plans should be submitted as early as possible, normally no later than the beginning of the junior year. This is important because it will provide students with sufficient time to plan an appropriate program. The program plans will be approved by the Physical Sciences Committee and filed in the Dean's Office. Any changes to the plan must be approved in writing by the student's advisor and the Chairperson.

Students planning to use any of the special topics, or special programs topics courses (including PHYS 318) as part of their Physical Sciences requirement must obtain written approval to do so. Many of these special topics courses are intended for non-science students and are not suitable for Physical Sciences majors.

In preparing a program plan, students should keep in mind that certain other courses are also not considered suitable for a Physical Sciences major. In particular, courses at lower levels than the core courses designed primarily for non-sciences students may be disallowed. Contact the Program Advisor for specific details.

## PHYSICS (PHYS)

### College of Computer, Mathematical, and Physical Sciences

1120 Physics Building, 301-405-5979

[www.physics.umd.edu](http://www.physics.umd.edu)

Professor and Chair: Goodman\*

Professors and Associate Chairs: Baden, Chant, Roberts

Professors Emeriti: Banerjee, C. Y. Chang, Currie, DeSilva, Dragt, Falk, Ferrell, Glick, Glover, Gluckstern, Goldenbaum, Griem, Holmgren, Kacser (Associate Professor Emeritus), Layman, Misner, Prange, Richard, Sucher, Woo

Chancellor Emeritus: Langenberg, Toll

President Emeritus: Gluckstern

Distinguished University Professors: Das Sarma, Fisher, Gloeckler, Ott, Phillips\*\*\*, Ramesh, Sagdeev, Sreenivasen, Webb (Alford Ward Chair), Williams\*\*, Yorke

Professors: Alley, Anderson, Anlage, Antonsen, Baden, Beise, Bhagat, Boyd, Brill, C. C. Chang, Chant, Chen, Chulakov, Cohen, Chubukov, Dorfman\*, Drake, Drew, Einstein, Eno, Gates\* (Toll Chair), Goodman\*, Greenberg, Greene, Griffin, Hadley, Hamilton, Hassam, Hu, Jacobson,

Jawahery, Ji, Kelly, Kim, Kirkpatrick, Korenman, Langenberg, Liu, Lobb\*, Mason, Milchberg\*, Mohapatra\*, Orozco, Paik, Papadopoulos, Park, Pati, Redish, Rolston, Roos, Roy, Skuja, Wallace, Wellstood, Yakovenko

Associate Professors: Buonanno, Dorland, Ellis, Fuhrer, Hammer, Lathrop, Luty, Roberts, Seo, Sullivan

Assistant Professors: Bedaque, Hoffman, Losert, Ouyang

Affiliated Professors: Hill, Panagiotopoulos, Phaneuf, Takeuchi, Weeks

Professor of the Practice: Berg

Senior Research Scientists: Dragt, Venkatesan

Adjunct Professors: Boldt, Lynn, Mather, Schwab

Lecturers: Rapport, Restorff

\*Distinguished Scholar-Teacher

\*\*Distinguished Faculty Research Fellow

\*\*\*Nobel Laureate

The Physics Program includes a broad range of undergraduate courses designed to satisfy the needs of almost every student, from the advanced physics major to the person taking a single introductory physics course. In addition, there are various opportunities for personally-directed studies between student and professor, and for undergraduate research. For further information consult "Undergraduate Study in Physics" available from the department. Students majoring in Physics can follow either the Professional Physics area of concentration, the Meteorology Physics area of concentration, or the Education Physics area of concentration. A grade of C or better is required in all courses required for the major.

## The Major

### Courses required for Physics Major:

| Lower-level courses for all areas of concentration             | Credit Hours |
|--|--------------|
| PHYS 171 Introductory Physics: Mechanics                       | 3            |
| PHYS 174 Physics Laboratory Introduction                       | 1            |
| PHYS 272 Introductory Physics: Fields                          | 3            |
| PHYS 273 Introductory Physics: Waves                           | 3            |
| PHYS 275 Experimental Physics I: Mechanics, Heat, and Fields 2 |              |
| PHYS 276 Experimental Physics II: Electricity and Magnetism    | 2            |
| MATH 140 Calculus I  | 4            |
| MATH 141 Calculus II   | 4            |
| MATH 241 Calculus III  | 4            |
| MATH 246 Differential Equations                                | 3            |
| MATH 240 Linear Algebra  | 4            |

### Upper-level courses for Professional Physics area of concentration

|  |   |
|--|---|
| PHYS 374 Intermediate Theoretical Methods  | 4 |
| PHYS 375 Experimental Physics III: Electromagnetic Waves, Optics, and Modern Physics | 3 |
| PHYS 401 Quantum Physics I   | 4 |
| PHYS 402 Quantum Physics II  | 4 |
| PHYS 404 Introduction to Statistical Mechanics                                       | 3 |
| PHYS 405 Advanced Experiments  | 3 |
| PHYS 410 Classical Mechanics   | 4 |
| PHYS 411 Intermediate Electricity and Magnetism                                      | 4 |

### Upper-level and supporting courses for Meteorology Physics area of concentration

|  |   |
|--|---|
| CHEM 135/136 Chemistry for Engineers/Lab                             | 4 |
| MATH 462 Partial Differential Equations for Scientists and Engineers | 3 |
| AOSC 431 Meteorology for Scientists and Engineers I                  | 3 |
| AOSC 432 Meteorology for Scientists and Engineers II                 | 3 |
| AOSC 434 Air Pollution   | 3 |
| PHYS 375 Experimental Physics III: Electromagnetic Waves, Optics     | 3 |
| *PHYS 401 Quantum Physics I  | 4 |
| *PHYS 402 Quantum Physics II   | 4 |
| PHYS 404 Introduction to Statistical Thermodynamics                  | 3 |

\*The PHYS 401-402 sequence in the Meteorology Physics area of concentration may be replaced by two of the following courses:

|  |   |
|--|---|
| PHYS 405: Advanced Experiments                   | 3 |
| PHYS 406: Optics                                 | 3 |
| PHYS 410: Classical Mechanics                    | 4 |
| PHYS 411: Intermediate Electricity and Magnetism | 4 |
| PHYS 420: Principles of Modern Physics           | 3 |

### Upper-level and supporting courses for Education Physics area of concentration

|   |   |
|---|---|
| EDPL 301 Foundations of Education   | 3 |
| EDHD 413 Adolescent Development   | 3 |
| EDHD 426 Cognitive and Motivational Basis of Reading: Reading in Content Area I | 3 |
| EDCI 463 Teaching Reading in Content Area II                                    | 3 |
| PHYS 374 Intermediate Theoretical Methods                                       | 4 |
| PHYS 411 Intermediate Electricity and Magnetism                                 | 4 |
| PHYS 401 Quantum Physics I  | 4 |
| PHYS 375 Experimental Physics III: Electromagnetic Waves, Optics                | 3 |

## 146 Plant Biology

In the Education Physics area of concentration: EDPL 301 may be replaced by EDPL 401 Educational Technology, Policy and Social Change (3). PHYS 401 may be replaced by PHYS 420- Principles of Modern Physics (3). PHYS 375 may be replaced by one additional non-seminar 400-level approved Physics course of 3-4 credits.

Students who are considering pursuing the Education Physics area of concentration are encouraged to enroll in EDCI 280 Introduction to Teaching, for a survey of education and teaching. The Education Physics area of concentration is designed to accommodate students obtaining a teaching certificate through the College of Education. However, completing all the courses in the Education Physics area of concentration does not in itself satisfy all requirements for obtaining a teaching certificate. Students pursuing the Education Physics area of concentration who want to also obtain a teaching certificate in secondary education must first apply and be admitted to the Secondary Education Program in the College of Education and then complete additional courses in that program.

CHEM 231/232 Organic Chemistry/Lab

Students planning to double major (or seek a double degree) in Physics and Astronomy should note that this combination does not automatically satisfy CORE Advanced Studies. These students must complete CORE Advanced Studies by taking courses from departments other than Physics and Astronomy.

### Advising

Advising for undergraduates is available throughout the year in Room 1120 PHY. For early registration, advising is mandatory; students should check Testudo for their early registration date and should sign up for an appointment in Room 1120 PHY. Students who have been away more than two years may find that due to curriculum changes the courses they have taken may no longer be adequate preparation for the courses required to complete the major. Students in this situation must meet with the Departmental Advisor to make appropriate plans.

### Honors

The Physics Honors Program offers to students of good ability and strong interest in physics a greater flexibility in their academic programs. To receive a citation of "with honors in physics" the student must pass a comprehensive examination in his or her senior year. To receive a citation of "with high honors in physics" he or she must also complete a senior thesis.

Course Code: PHYS

### Minor in Physics

This minor provides a rigorous foundation in physics for students who choose not to complete the entire physics major. The minor begins with a set of two introductory courses (6 credits) in electromagnetic fields (PHYS 262 or PHYS 272) and waves (PHYS 263 or PHYS 273). As part of this introduction to Physics, the minor also requires a one-credit introductory physics laboratory (PHYS 174, PHYS 261, or PHYS 271) involving techniques of data gathering and analysis. To obtain a deeper understanding of physics, the minor requires three additional upper-level courses (3-4 credits each), which students can select from: intermediate theoretical methods (PHYS 374), optics lab (PHYS 375), quantum physics (PHYS 401, 402), statistical mechanics (PHYS 404), classical mechanics (PHYS 410), electricity and magnetism (PHYS 411), modern optics (PHYS 465), and computational physics (PHYS 474). Other upper level Physics courses can be substituted only with approval from the Department's undergraduate director and the Faculty Minor Advisor. All courses must be completed with a grade of C or better to be counted towards the minor. No more than 7 credits in this minor can count toward major requirements. Students with more than 7 credits of overlap must substitute non-overlapping 300 or 400 level courses from the above list to reduce the overlap to no more than 7 credits. Students interested in taking this minor program should contact the undergraduate office in the Department of Physics for advising. Physics majors and students majoring in Astronomy are not eligible to complete the Physics Minor due to the large number of overlapping course requirements.

Courses required for the minor are: (7 Credits):

- PHYS 174: "Physics Laboratory Introduction (1)", or PHYS 261: "General Physics: Vibrations, Waves, Heat, Electricity and Magnetism: Laboratory (1)", or PHYS 271: "General Physics: Electrodynamics, Light, Relativity and Modern Physics: Laboratory (1)"
- PHYS 272 "Introductory Physics: Fields (3)", or PHYS 260: "General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (3)"

- PHYS 273: "Introductory Physics: Waves (3)" or PHYS 270: "General Physics: Electrodynamics, Light, Relativity and Modern Physics (3)".

In addition, the student must choose three from the following: (9-12 Credits):

- PHYS 374: Intermediate Theoretical Methods (4)
- PHYS 375: Experimental Physics III: EM Waves, Optics & Modern Physics (3)
- PHYS 401: Quantum Physics I (4)
- PHYS 402: Quantum Physics II (4)
- PHYS 404: Introductory Statistical Thermodynamics (3)
- PHYS 410: Classical Mechanics (4)
- PHYS 411: Intermediate Electricity and Magnetism (4)
- PHYS 465: Modern Optics (3)
- PHYS 474: Computational Physics (3)

### Prerequisites

MATH 140 (4 credits), MATH 141 (4 credits), MATH 241 (4 credits), MATH 240 (4 credits), MATH 246 (3 credits), and Physics 161 (or Physics 171) (3 credits) are prerequisites for some of the courses in this program.

### Contact

Students interested in earning a minor in physics should contact the undergraduate advisor for the Physics Department:

1120F John S. Toll Physics Building  
301-405-5979

[phys-ugradinfo@physics.umd.edu](mailto:phys-ugradinfo@physics.umd.edu)

**Note:** At the beginning of the semester in which graduation is intended, a student should make an appointment with the Physics Department's Undergraduate Advisor to fill out the paperwork needed to get the Minor on the official transcript.

## PLANT BIOLOGY

Departments in the College of Chemical and Life Sciences have been reorganized. Courses in plant biology are now offered by the Department of Cell Biology and Molecular Genetics.

## PSYCHOLOGY (PSYC)

### College of Behavioral and Social Sciences

1107 Biology-Psychology Building, 301-405-5866

[www.bsos.umd.edu/psyc/undergraduate/](http://www.bsos.umd.edu/psyc/undergraduate/)

Professor and Chair: Hall

Professor, Associate Chair and Director of Graduate Studies: Sigall  
Professors: Anderson (Emerita), Bellack\*\*, Brauth, Cassidy, Coursey (retired), Collewijn\*\*, Dooling, Fox\*, Fretz (Emeritus), Gelso, Goldstein, Gollub (Emeritus), Hanges, Hill, Hodos, Kowler\*\*, Kruglanski, Lissitz\*, Locke\*, Martin (retired), McIntire (Emeritus), J. Mills, Moss, Ostroff, Penner (Emeritus), Popper\*, Rosenfeld\*, Schneider (retired), Scholnick, Smith, Stangor, Steinman, Sternheim, Suomi\*\*, Torney-Purta\*, Tyler (Emeritus), Waldrop (Emeritus), Wallsten, Woodward, Yeni-Komshian (Emerita)\*  
Associate Professors: Blanchard, R. Brown (retired), Dougherty, Freeman (Emeritus)\*, Gelfand, Gold\*\*, Jekka\*, Larkin (retired), Lejuez, Leone\*, Murnane, Norman, O'Brien, O'Grady, Schneiderman\*, Steele, Yager  
Assistant Professors: J. Carter\*\*, Castles\*\*, Chronis, Fago\*\*, Hazel-Johnson\*\*, Herberholtz, Huber, Marx\*\*, Miller\*\*, Pompilo\*\*, Reibsame\*, Royalty\*\*, Spiefel\*\*, Sprei\*\*, Tashiro, Thompson\*\*, Tipton\*, Troyer, Wine\*\*, Zamostny\*

\*Affiliate

\*\*Adjunct

### The Major

Psychology can be classified as a biological science (Bachelor of Science degree) and a social science (Bachelor of Arts degree) and the department offers academic programs related to both of these fields. The undergraduate curriculum in psychology is an introduction to the methods by which the behavior of humans and other organisms is studied, and to the biological conditions and social factors that influence such behavior. In addition, the undergraduate program is arranged to provide opportunities for learning that will equip qualified students to pursue further study of psychology and related fields in graduate and professional schools. Students who are interested in the biological aspects of behavior tend to choose a program leading to the Bachelor of Science degree, while those

interested primarily in the impact of social factors on behavior tend to choose the Bachelor of Arts degree. The choice of program is made in consultation with an academic advisor.

## Requirements for Major

All students must take at least 35 credits in Psychology including 14 credits at the 400-level. PSYC 309C, 386, 478 and 479 may not be included in those 35 required credits. The required courses include PSYC 100, 200 and two laboratory courses chosen from PSYC 401, 410, 420, 433, 440, and 450. In order to assure breadth of coverage, Psychology courses have been divided into four areas. The 35 credit total must include at least two courses from two of the four areas and at least one course from each of the remaining areas. The areas and courses are:

Area I: 206, 301, 310, 401, 402, 403, 404, 410  
 Area II: 221, 341, 420, 423, 424, 440, 442, 443  
 Area III: 235, 318, 319, 332, 334, 337, 353, 354, 355, 356, 357, 432, 433, 434, 435, 436, 455, 456, 457, 458  
 Area IV: 336, 361, 450, 451, 452, 460, 463, 464, 465, 466  
 No Area: 415

In addition, all students must complete (a) either MATH 111, or MATH 140 or MATH 220; (b) one of the following laboratory courses: BSCI 105\*, BSCI 106, CHEM 103, or PHYS 121.

\*Note BSCI 103, formally BIOL 101/102, does not satisfy the Lab Science requirement for Psychology. If you have completed BSCI 103, you should take BSCI 106, CHEM 103, or PHYS 121.

Students pursuing a Bachelor of Science degree must complete a minimum of 5 courses/17 credits in mathematics and science. At least three courses must be advanced and at least two courses must contain a lab. The 5 course/17 credits must be completed with at least a 2.0 average. MATH 111, MATH 140, MATH 220, BSCI 105, BSCI 106, CHEM 103 and PHYS 121 may be used to satisfy part of the requirement for the B.S. degree. Students should consult the current Psychology Undergraduate website for a list of approved advanced Math-Science Courses.

A grade of C or better must be earned in all 35 credits of psychology courses used for the major and all credits used to meet the Math-Science supporting course sequence. No course may be used as a prerequisite unless a grade of C is earned in that course prior to its use as a prerequisite. The prerequisite for any psychology laboratory course is completion of PSYC 200 and completion of the Math-Science supporting course sequence.

## Admission to the Department of Psychology

In accordance with University policy, the Department of Psychology has been designated a Limited Enrollment Program (LEP). All first-time freshman admits who request Psychology will be directly admitted into the major. Other first-time freshman that wish to declare Psychology as a major prior to the end of the schedule adjustment period of the second semester in residence will be allowed to do so.

In order to remain a Psychology major, newly admitted freshman will be required to meet an academic performance review on or before the end of the semester in which they attain {pass} 45 University of Maryland credits. This standard includes:

- Completion of PSYC 100 with a grade of B or better, or, if a student enters with AP or IB credit for PSYC 100, this requirement is replaced by completion of PSYC 221 with a grade of B or better;
- Completion of MATH 111, 140 or 220 with a grade of C or better;
- Completion of BSCI 105, BSCI 106, CHEM 103 or PHYS 121 with a grade of C or better; and
- A minimum cumulative GPA of 2.00.

All other students, including both internal and external transfer students, will not be admitted to the program until they have met the following requirements:

- Completion of PSYC 100 with a grade of B or better, or, if a student enters with AP or IB credit for PSYC 100, this requirement is replaced by completion of PSYC 221 with a grade of B or better;
- Completion of MATH 111, 140 or 220 with a grade of C or better;
- Completion of BSCI 105, BSCI 106, CHEM 103 or PHYS 121 with a grade of C or better; and

- A minimum cumulative GPA based on all previous college-level coursework of 2.70 or higher.

As is the general case for all Limited Enrollment Programs:

- Only one "gateway" or performance review course may be repeated to earn the required grade and that course may be repeated only once;
- Students may apply only once to an LEP, so that students who are directly admitted and fail to meet the performance review criteria will be dismissed from the major and may not reapply; and
- Students must maintain a cumulative GPA of 2.00. Failure to do so will result in dismissal from the major.

The above requirements will apply to all students after May 2003, regardless of the date of first admission.

Any student denied admission or dismissed from the major may appeal. Dismissed students appeal directly to the Director of Undergraduate Studies in Psychology. Internal transfer students appeal to the Office of the Dean for Behavioral and Social Sciences. External transfer students appeal to the Office of Admissions.

## Advising

All students can be advised on choice of major, career decisions, research opportunities, graduate school applications, USP/CORE requirements, major requirements, scheduling, and other academic concerns. Advising appointments can be arranged by contacting the undergraduate office, 1107 Biology-Psychology Building at 301-405-5866. Visit [www.bsos.umd.edu/psyc/undergraduate](http://www.bsos.umd.edu/psyc/undergraduate) for more information.

## Student Organizations

Information about the Psychology Honorary Society (Psi Chi) and the Black Psychology Society is posted outside the Undergraduate Psychology Office, 1107 Biology-Psychology Building. All students are welcome to attend the workshops sponsored by these organizations on topics of special interest to undergraduates.

## Experiential Learning

The department offers internships in psychology through PSYC 386. Visit [www.bsos.umd.edu/psyc/undergraduate/intern.html](http://www.bsos.umd.edu/psyc/undergraduate/intern.html)

## Honors

The Psychology Honors Program offers the exceptional student a series of seminars and the opportunity to do independent research under a faculty mentor. To be admitted to the program students must file a formal application and be interviewed by the Director of the Program, Dr. William S. Hall, 1147A Biology-Psychology Building, 301-405-5788. Students are eligible to enter the program if they are in their fourth to sixth semester of undergraduate work and have completed three courses in Psychology including PSYC 200, and have a 3.3 GPA overall and in Psychology. Students in the University Honors Program may be admitted in their third semester providing that they have (a) earned an A in PSYC 100 or 100H, (b) finished the mathematics prerequisite for PSYC 200 and (c) have an overall GPA and Psychology GPA of at least 3.3. Since there are different graduation requirements including an undergraduate thesis and supporting math and science courses, the student is urged to consult the Guide to the Honors Program in Psychology available in the undergraduate office or at [www.bsos.umd.edu/psyc/undergraduate/](http://www.bsos.umd.edu/psyc/undergraduate/).

Course Code: PSYC

## PUBLIC AND COMMUNITY HEALTH (HLTH)

### College of Health and Human Performance

2387 Health and Human Performances Building, 301-405-2463  
[www.hhp.umd.edu/dpch](http://www.hhp.umd.edu/dpch)

Professor and Chair: Glover

Professors: Beck, Boekelvo, Burt, Feldman, Glover, Gold, Greenberg, Leviton, Wang, Wilson

Associate Professors: Boekeloo, Desmond, Howard, Thompson

Assistant Professors: Ackinson, Hsu

Instructors: Hyde, Schiraldi, Sharp



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### The Major

Students graduate with a Bachelor of Science degree in Community Health which prepares students for entry-level health education positions in a variety of community health settings: worksite health promotion, research and development, hospitals, and health agencies.

### Requirements for Major

In addition to the University's CORE, students must fulfill four other general sets of requirements: Electives, Supportive Requirements, Health Electives, and Professional Preparation. HLTH491, the Community Health Internship, is completed during the student's final semester and after all other course work has been successfully completed.

#### Community Health Major - 120 Credits

##### Supportive Requirements (32 Credits)

|  |   |
|--|---|
| HLTH 130 Introduction to Public & Community Health                                   | 3 |
| HLTH 140 Personal and Community Health   | 3 |
| HLTH 150 First Aid and Emergency Medical Services                                    | 2 |
| HLTH 230 Introduction to Health Behavior   | 3 |
| BSCI 105 Principles of Biology   | 4 |
| BSCI 201 Anatomy and Physiology I  | 4 |
| BSCI 202 Anatomy and Physiology II   | 4 |
| EDMS 451 Introduction to Educational Statistics                                      | 3 |
| One upper level course from any two departments:<br>EDCP or EDHD or FMST (6 Credits) |   |

##### Health Electives (18 Credits)

|  |   |
|--|---|
| (Any 6 courses - No more than two experiential courses+) |   |
| HLTH 106 Drug Use and Abuse                              | 3 |
| HLTH 285 Controlling Stress and Tension                  | 3 |
| HLTH 371 Communicating Health and Safety                 | 3 |
| HLTH 377 Human Sexuality                                 | 3 |
| HLTH 38x Peer Education +                                | 3 |
| HLTH 400 Serving Learning in Health Education +          | 3 |
| HLTH 430 Health Education in the Workplace               | 3 |
| HLTH 437 Consumer Behavior                               | 3 |
| HLTH 460 Minority Health                                 | 3 |
| HLTH 471 Women's Health                                  | 3 |
| HLTH 476 Death Education                                 | 3 |
| HLTH 485 Ways of Knowing About Stress                    | 3 |
| HLTH 487 Adult Health and Development +                  | 3 |
| HLHP 488 Children's Health and Development Clinic +      | 3 |
| KNES 360 Physiology of Exercise                          | 3 |
| NFSC 100 Elements of Nutrition                           | 3 |

**Electives** 16

##### Professional Preparation (21 Credits)

|  |     |
|--|-----|
| HLTH 391 Principles of Community Health I  | 3   |
| HLTH 420 Methods and Materials in Health   | 3   |
| HLTH 490 Principles of Community Health II | 3   |
| HLTH 491 Community Health Internship       | 12  |
| Community Health in the Workplace          | (3) |

### Advising

Advising is mandatory. Community Health Advisor: David H. Hyde, 2387 HLHP Building, 301-405-2523 or 301-405-2463.

### Student Honors Organization

**Eta Sigma Gamma.** The Epsilon chapter was established at the University of Maryland in May 1969. This professional honorary organization for health educators was established to promote scholarship and community service for health majors at both the graduate and undergraduate levels. Students may apply after two consecutive semesters with a 2.75 cumulative grade point average.

Course Code: HLTH

## ROMANCE LANGUAGES

For information, see listing under School of Languages, Literatures, and Cultures, French and Italian, elsewhere in this chapter.

## RUSSIAN LANGUAGES AND LITERATURES

For information, see listing under School of Language, Literature, and Cultures, Asian and East European Languages and Cultures.

## SOCIOLOGY (SOCY)

### College of Behavioral and Social Sciences

2108 Art-Sociology Building, 405-6389

[www.bsos.umd.edu/socy](http://www.bsos.umd.edu/socy)

Professor and Chair: Falk

Professors: Bianchi, Clignet (Emeritus), Dager (Emeritus), Dill\* (Women's Studies), Falk, Fink\* (Speech Communication), Finsterbusch, Gurevitch\* (Journalism), Hage+ (Emeritus), Hamilton, Hampton\* (Family Studies), Kammeyer (Emeritus), Lejins (Emeritus), Levy\* (Journalism), Lucas, Meeker, H. Presser, S. Presser, Ritzer+, Robinson, D. Segal+, M. Segal+, Vanneman, Wilson\* (Health Education, Center on Aging)

Associate Professors: Dance, Desai, Favero\* (AES), Henkel (Emeritus), Hirzel (Emeritus), J. Hunt (Emeritus), L. Hunt, Kahn, Kestnbaum, Korzeniewicz, Landry, Larsen, Lengermann, Milkie, Neustadt, Pease

Assistant Professors: DeRose, Lucas, Mamo, Martin

Lecturer: Moghadam

†Distinguished Scholar Teacher

\*Joint Appointment with unit indicated.

### The Major

Sociology is the scientific study of society and its institutions, organizations, and groups. By observing the broad range of activities in society, and exploring topics such as social class, race, gender, deviance, family, religion, the work place, and demographic trends, sociologists provide important information and perspectives on our social order and the causes and impacts of social change. Sociology provides important information useful both to personal life and public policy decisions. Sociology is among the broadest of the social sciences and is characterized by considerable pluralism in theoretical and methodological approaches, substantive specializations, and in units of analysis.

Students major in Sociology for a variety of reasons. Some emphasize sociology's relevance to understanding a broad range of social issues that interest them for intellectual curiosity, personal life relevance, or usefulness for ameliorative social change efforts. Other majors emphasize acquisition of sociological knowledge and skills useful in a variety of career paths where understanding societal problems and trends, group dynamics, and personnel issues are critical. For a small core of majors, the purpose of the undergraduate program is preparation and training for admissions to graduate programs and eventual careers as sociologists in teaching, research and/or policy development. Other majors use sociology as a basis for graduate study in related fields, including law, social work, public policy, and human resource management.

### Goals and Objectives of the Undergraduate Sociology Program

The overall goals of the program are:

- To provide meaningful and challenging courses within the University CORE program
- To provide meaningful and challenging courses as electives for non-majors
- To provide a coherent program of courses for Sociology majors which enables majors to attain:
  - a) general sociological knowledge and understanding of our society;
  - b) sociological knowledge and skills relevant to a variety of career paths,
  - c) sociological knowledge and skills relevant to application to and success within competitive sociology graduate programs and careers; and
- To provide a Sociology Honors component for selected students who have the capability and motivation to work at the most challenging level.

The program attempts to provide students the opportunity and ability to meet the following objectives:

- To read and think critically and to assess information about our society in terms of sociological concepts and a social science model of argument
- To understand the key questions addressed by the discipline, and to be able to identify both similarities and contrasts with other disciplines
- To be familiar with basic sociological information about our society and its place in the international order
- To be acquainted with the role of theory in the construction of sociological inquiry; for majors this entails knowing the central ideas of major classical and contemporary theorists
- To understand the social science model of evidence and argument: for majors this entails familiarity with basic social statistics techniques, basic methods of data collection, basic techniques of organizing and presenting information, and the ability to carry out a small research project.

## Requirements for Major

As part of the 120 credits and other requirements for a Bachelor of Arts degree, sociology majors must complete a minimum of 38 credits in Sociology and 12 credits in supporting courses outside of Sociology. All these credits must be completed with a minimum grade of C or better in each course. The 38 credits in Sociology must include the following:

- 1) four basic courses required of all majors: SOCY100 (3); SOCY201 (4); SOCY202 (4); and SOCY203 (3)
- 2) a breadth requirement consisting of one course from three of the following concentration areas:
  - a) Family and Demography: SOCY410; SOCY443
  - b) Organizations and Institutions: SOCY431; SOCY443; SOCY460; SOCY464; SOCY466
  - c) Social Psychology: SOCY230; SOCY430
  - d) Stratification and Inequality: SOCY441
- 3) a depth requirement consisting of at least three courses (including one required) in any one of the following concentration areas:
  - a) Family and Demography: SOCY410 (required); SOCY411; 412; 418\*; 442; 443; 444; 461
  - b) Organizations and Institutions: SOCY431 (required); SOCY425; 426; 438\*; 443; 456; 457; 460; 462; 463; 464; 465; 466; 467
  - c) Social Psychology: SOCY230 (required); SOCY402 or 404; 430; 440; 447; 448\*; 450; 463
  - d) Stratification and Inequality: SOCY441 (required); SOCY325; 421; 422; 424; 425; 428\*; 442; 462; 467
- 4) an intermediate methods course or research course requirement, consisting of one course to be selected from a list maintained by the Sociology Undergraduate Advising Office.
- 5) elective courses in sociology, sufficient to fill out the required minimum of 38 credits in sociology; these may be selected from any of the sociology courses.

The four supporting courses outside of sociology (12 credits) must be linked to the area of concentration selected to meet the depth requirement and must be selected from a list of recommended supporting courses maintained by the Sociology Undergraduate Advising Office.

Students should note the following in reference to Sociology requirements:

- a) SOCY201 has a pre-requisite of Math 111 or higher with a minimum grade of C;
- b) some of the courses necessary to fulfill depth requirements and/or the methods/research course requirement may have pre-requisites such as SOCY201, 202, and 203;
- c) it is permissible to count one course as fulfilling more than one type of requirement, e.g. a course can be counted towards meeting a breadth requirement and a depth requirement, or a course might be counted towards a depth requirement while simultaneously fulfilling the methods/research course requirement;
- d) special topics courses (indicated with an \* in the above lists) may be repeatable for credit if its content differs from when previously taken;
- e) SOCY498 courses may be used to fulfill depth requirements for particular concentration areas when so designated by the Undergraduate Sociology Office; the Sociology Undergraduate Office maintains current lists of special topics courses (SOCY498) that fulfill depth requirements; and
- f) each course counted as meeting sociology or supporting course requirements must be passed with a grade of C or better.

## Honors Program in Sociology

The Sociology Honors Program seeks to encourage and recognize superior scholarship by providing an opportunity for interested, capable, and energetic undergraduate students to engage in study in an area of the student's interest under the close supervision of a faculty mentor. The honors program is based upon tutorial study and independent research.

Students who have an overall cumulative grade point average of at least 3.3, a cumulative average of 3.5 in Sociology courses, and who have taken at least nine credits in Sociology may apply. Transfer students with equivalent academic records at other accredited institutions are also eligible. Admission to the program will be based upon academic performance and the judgment of the Undergraduate Committee whether the applicant has sufficient maturity and interest to complete successfully the requirements for graduation with Honors. Further information on the honors program is available from the Sociology Undergraduate Office.

## Advising

Regular advising is strongly recommended for all majors. Advising is particularly important for those majors who are considering going on to graduate school. Majors are reminded of the importance of taking the four basic required courses (SOCY 100, 201, 202, 203) as soon as possible because these are prerequisites for some upper level work. Further information on course work, internships, the department honors program, careers, and other topics may be obtained from the Sociology Undergraduate Advisor, 2108 Art/Sociology Building, 405-6389.

## Internship Opportunities

Although internships are not a requirement for a major, students may wish to consider the internship program offered by the department or through the Experiential Learning Office located in Hornbake Library. Majors may receive up to six credits in SOCY386 when an internship/volunteer position is combined with an academic project. A prerequisite of 12 credit hours in Sociology course work is required. Sociology internship credit does not count toward meeting requirements for the major.

## Student Organizations

The Sociology Collective, open to all Sociology majors, is organized by a group of interested undergraduates to fill student needs within the Sociology community. The Collective provides information about topics of interest, including department activities, career planning, and relevant changes within the university, and strives to enhance the sense of community within the department. Representatives of the Collective participate in many faculty committees within the department and thereby provide the undergraduate perspective on policy issues.

Alpha Kappa Delta is the National Honor Society for Sociology majors. Membership is based on Sociology GPA (3.0 minimum) and overall GPA (3.0 minimum). Students may apply after they have completed 18 hours of Sociology course work. This organization's activities focus on providing tutoring services for undergraduates in core courses.

## SPANISH AND PORTUGUESE LANGUAGES AND LITERATURES (SPAN, PORT)

For more information, consult School of Languages, Literatures, and Cultures elsewhere in this chapter.

## SPECIAL EDUCATION (EDSP)

### College of Education

1308 Benjamin Building, 301-405-6515/4  
[www.education.umd.edu/EDSP/](http://www.education.umd.edu/EDSP/)

Professor and Chair: Burke

Professors: Beckman, Egel, Hebeler (Emeritus), Leone, Lieber, McLaughlin, Moon, Neubert, Speece

Associate Professors: Cooper, Kohl, Maccini

Assistant Professors: Drakeford, Staples

Research Associates: Barnwell, Greig, Grigal, Gruber, Kelly, Meisel, Nagle, Warren

Undergraduate Coordinator: Molloy

Lecturers: Aiello, Brown, Case, Danehey, Fink, Hudak, Johnson, Thanhouer, Waranch

Faculty Research Assistants: Newcomb, Stepanek, Wayne, Young

The Special Education Department offers an innovative and rigorous undergraduate program which prepares teachers of infants, children, or young adults with disabilities. This program has been nationally recognized for many of its exemplary features. It is a five-year (10-semester, 150-credit hour) professional certification program which graduates students with a Bachelor of Science degree in special education with full special education teacher certification in the State of Maryland and certification reciprocity in 44 other states. Students considering a special education major enroll in courses which meet university and college requirements while they take supporting course work designed to provide an understanding of typical human development and basic psychological and sociological principles of human behavior. Special Education students receive specialized training in the following areas: language development; motor development; social-emotional development; typical human behavior; social and educational needs of individuals with disabilities; diagnostic and educational assessment procedures; instructional procedures and materials; curriculum development; classroom and behavior management; effective communication with the parents and families of children with disabilities;

## 150 Special Education

community resource planning; and local, state, and federal laws concerning children and youth with disabilities. Graduates of the program are expected to master specific skills in each of these areas.

### Requirements for Major

**Changes in requirements are under review. Students should contact the Department for updated information.** Students interested in majoring in Special Education must consult a departmental advisor as early as possible after matriculation at the university since the curriculum requires an extensive and sequenced program of studies. Students accepted as Special Education majors take a two-semester sequence of foundation special education courses and practicum experiences during the third year (Semesters V and VI). These courses provide the student with a solid foundation in theory and practice related to the education of all children with disabilities across a wide range of ages.

Students work directly with children or youth with disabilities during each semester, leading up to student teaching during the last semester.

### Combined Bachelor's/Master's Program

Selected undergraduate students majoring in special education will be eligible for dual application of credit to both the bachelor's and master's degrees. A student desiring graduate credit should apply for admission to the Graduate School during the last semester of the fourth year. If admitted to the Graduate School, the student may select up to 12 credits (four courses) of specified course work from the fifth year of the undergraduate program to be applied simultaneously toward the credits required for the master's degree in special education at the University of Maryland. The selected courses may not include field practica or student teaching experiences. Students will be expected to fulfill supplemental requirements in the selected courses. To complete the master's degree, students must fulfill all Graduate School requirements for the degree, with the exception of the selected combined program courses.

### Admission

Prior to formal acceptance as a special education major, all students are required to enroll in a special education introductory course (EDSP 210) which provides a survey of the history and current issues in special education. Upon successful completion of the introductory course and 45 semester hours of requirements, students apply for formal admission to the professional program of the Department of Special Education by submitting an application with a statement of intent specifying their professional goals. To be accepted as a full special education major, students must fulfill the College of Education requirements for admission to Teacher Education, as well as the following departmental conditions:

1. Completion of course work indicated below with an asterisk.
2. Admission is competitive beyond the minimum 2.5 grade point average required for consideration.
3. Submission of an application together with a statement of intent specifying the applicant's professional goals.
4. Submission of three letters of recommendation.
5. Completion of College of Education Technical Standards Acknowledgment Form.

Admittance will be based on the completion of the required courses, the grade point average, the applicant's experience with persons with disabilities, and the appropriateness and clarity of the professional goal statement. An appeals process has been established for students who do not meet the competitive GPA for admission, but who are applying in connection with special university programs including affirmative action and academic promise.

### Advising

The Department of Special Education provides academic advisement through a faculty and a peer advisement program. Special Education majors are assigned a faculty advisor, who is carefully matched to the student's area of interest. It is required that all students consult an advisor each semester. Students are urged to use the Special Education Advising Center, 1235 Benjamin Building.

### Awards

The Department of Special Education Student Service Award is presented annually to the graduating senior who has demonstrated outstanding leadership and service to the Special Education Department.

## Student Organizations

The Department of Special Education encourages student participation in extracurricular activities within and outside of the University. Opportunities within the department include the Council for Exceptional Children. For more information, stop by the Special Education Advising Center, 1235 Benjamin Building.

### Required Courses

All preprofessional and professional course work must be completed with a grade of C or better prior to student teaching. CORE Liberal Arts and Science Studies Program Requirements include the following courses which are departmental requirements: (Consult with a departmental advisor with regard to USP requirements.)

|                       |   |
|-----------------------|---|
| *HIST 156 or HIST 157 | 3 |
| *STAT 100             | 3 |
| *Lab Science          | 4 |
| *ENGL Literature      | 3 |
| *PSYC 100             | 3 |
| *SOCY 100 or 105      | 3 |

### Other Academic Support Courses

|  |   |
|--|---|
| *HESP 202  | 3 |
| MATH 212   | 3 |
| *EDHD 411 or PSYC 355                              | 3 |
| *EDHD Elective (See Department for approved list.) |   |

### Professional Courses

|   |   |
|---|---|
| *EDSP 210 Introduction to Special Education                     | 3 |
| EDCI 385 Computers for Teachers                                 |   |
| EDHD 425 Language Development and Reading Acquisition           | 3 |
| EDPL 301 Foundations of Education                               | 3 |
| EDSP 403 Instruction of Students with Physical Disabilities     | 3 |
| EDSP 406 Field Placement I: Special Education                   | 1 |
| EDSP 407 Field Placement II: Special Education                  | 3 |
| EDSP 413 Behavior and Classroom Management in Special Education | 3 |
| EDSP 415 Assessment in Special Education                        | 3 |
| EDSP 416 Reading and Writing Instruction in Special Education I | 3 |

### Specialty Area Requirements

#### The Early Childhood Special Education Option

|   |    |
|---|----|
| EDSP 400 Functional Assessment & Instruction in Special Education                       | 3  |
| EDSP 484 Reading and Writing Instruction in Special Education II                        | 3  |
| EDSP 420 Characteristics of Infants & Young Children: Early Childhood Special Education | 3  |
| EDSP 421 Field Placement III: Early Childhood Special Education                         | 4  |
| EDSP 423 Assessment in Early Childhood Special Education                                | 3  |
| EDSP 430 Early Intervention: Early Childhood Special Education                          | 3  |
| EDSP 424 Field Placement IV: Early Childhood Special Education                          | 4  |
| Major Elective (see Department for approved list)                                       |    |
| EDSP 422 Curriculum and Instruction: Early Childhood Special Education                  | 3  |
| EDSP 487/687 Family Partnerships in Special Education                                   | 3  |
| EDSP 404/604 Education of Students with Autism  | 3  |
| EDSP 431 Field Placement V: Early Childhood Special Education                           | 4  |
| EDSP 490/690 Capstone Seminar in Special Education                                      | 3  |
| EDSP 494 Internship: Early Childhood Special Education                                  | 11 |

#### The Elementary Special Education Option

|   |    |
|---|----|
| EDSP 400 Functional Assessment & Instruction in Special Education       | 3  |
| EDSP 484 Reading and Writing Instruction in Special Education II        | 3  |
| EDSP 451 Curriculum & Instruction: Elementary Special Education         | 3  |
| EDSP 452 Field Placement III: Elementary Special Education              | 4  |
| EDSP 410 Community-Based Assessment & Curriculum in Special Education   | 3  |
| EDSP 453 Methods & Models of Instruction: Elementary Special Education  | 3  |
| EDSP 485 Assessment and Instruction in Mathematics in Special Education | 3  |
| EDSP 454 Field Placement IV: Elementary Special Education               | 4  |
| EDSP 487/687 Family Partnerships in Special Education                   | 3  |
| EDSP 455 Assessment in Elementary Special Education                     | 3  |
| EDSP 486/686 Promoting Prosocial Behavior in Special Education          | 3  |
| EDSP 456 Field Placement V: Elementary Special Education                | 4  |
| EDSP 490/690 Capstone Seminar in Special Education                      | 3  |
| EDSP 495 Internship: Elementary Special Education                       | 11 |

#### The Secondary/Middle Special Education Option

|  |   |
|--|---|
| EDSP 400 Functional Assessment & Instruction in Special Education        | 3 |
| EDSP 466 Issues and Models: Secondary/Middle Special Education           | 3 |
| EDHD 426 Cognition and Motivation in Reading: Reading in Content Areas I | 3 |

|  |    |
|--|----|
| EDSP 434 Field Placement III: Secondary/Middle Special Education                     | 4  |
| EDSP 410 Community-Based Assessment & Curriculum in Special Education                | 3  |
| EDSP 474 Assessment in Secondary/ Middle Special Education                           | 3  |
| EDCI 463 Reading in Secondary School   | 3  |
| EDSP 485 Assessment and Instruction in Mathematics in Special Education              | 3  |
| EDSP 435 Field Placement IV: Secondary/Middle Special Education                      | 4  |
| EDSP 477 Curriculum, Assessment, & Instruction in Secondary/Middle Special Education | 3  |
| EDSP 487/687 Family Partnerships in Special Education                                | 3  |
| EDSP 486/686 Promoting Prosocial Behavior in Special Education                       | 3  |
| EDSP 436 Field Placement V: Secondary/Middle Special Education                       | 4  |
| EDSP 490/690 Capstone Seminar in Special Education                                   | 3  |
| EDSP 496 Internship: Secondary/Middle Special Education                              | 11 |

Course Code: EDSP

## SPEECH COMMUNICATION

The Department of Speech Communication is now the Department of Communication. See entry elsewhere in this chapter.

## STATISTICS

For information consult the entry under Mathematical Statistics Program.

## THEATRE (THET)

### College of Arts and Humanities

2810 Clarice Smith Performing Arts Center, 301-405-6676

E-mail: thetinfo@umd.edu

[www.theatre.umd.edu](http://www.theatre.umd.edu)

Acting Chair: Wagner

Professors: Hébert, Hildy, Huang, Wagner

Associate Professors: Conway, Nathans, Reese, Schuler

Assistant Professors: Burgess, Smiley

Instructors: Deighton, Kriebs

Emeritus: Gillespie, Meersman, Patterson, Pugliese

### The Major

Small classes, diversity, and a close-knit departmental environment promote a strong sense of community within the Department of Theatre. An extensive production schedule offers students a myriad of opportunities to practice their craft. The Department is a supportive and stimulating environment that fosters students' creative development and spurs their achievements. A comprehensive new curriculum embraces the liberal arts approach to theatre study and cultivates skills—discipline, creativity, self-confidence and critical thinking—that are valuable in all career fields. Our performance and design/production faculty members are active in professional theatre—members of Actors Equity and United Scenic Artists—providing students a vital link to the world of professional theatre. Our history/theory faculty members regularly publish and participate at national and international conferences. Situated in close proximity to the vibrant and stimulating theatre world of Washington D.C and Baltimore, students have ready access to the best of contemporary and classical productions at more than 80 professional theatres and enjoy a unique opportunity to participate through internships and other projects. The state-of-the-art Clarice Smith Performing Arts Center features six performing venues and also houses the Department of Dance, School of Music and the Michelle Smith Performing Arts Library.

The Department of Theatre offers a balanced, liberal arts education that integrates production, design, and scholarship. Under this curriculum, students will gain a strong foundation in the theatre arts, and have the opportunity to tailor the degree to their own interests and strengths. Additional advanced coursework is available as well, and is designed to prepare students for their next step, whether it is into graduate school, the profession, or another field entirely.

### Requirements for Major

Requirements for the College of Arts and Humanities include a minimum of 45 upper-level credits and a foreign language requirement.

Students in the Theatre major prior to fall 2005 should consult the Department for prior curriculum requirements.

Major requirements include 55 credits of course work in Theatre – 40 credits in THET and 15 credits in Supporting Courses. Of the 55 credits, at least 27 credit hours must be upper level (300-400 series). No course with a grade less than "C" may be used to satisfy major or supporting area requirements. No course for the major may be taken Pass/Fail.

### FOUNDATION SERIES: 19 credit hours required

All majors must complete the following fundamental courses (19 credits), which are open only to theatre majors: THET 112, Fundamentals of Performance; THET 113, Fundamentals of Theatre History; THET 114, Fundamentals of Theatre Craft; THET 115, Fundamentals of Analysis; THET 116, Fundamentals of Design; THET 479, Production Practicum (1 credit repeated three times); and THET 288, Fundamentals Project (1 credit).

- Fundamentals courses may be taken in any sequence
- Four out of the five courses should be completed by the end of the second semester or 30 credits
- Students may register for Area Menu courses in the 3rd semester if 4 of the 5 fundamentals courses (THET 112-116) are completed
- THET 288 is taken in the 3rd or 4th semester
- Students are expected to complete THET 112-116 and THET 288 must be completed by the end of the 4th semester or 60 credits
- THET 479 (3 - 1 credit courses for a total of 3 credit hours) cannot be taken until THET 114 is completed
- THET 479 must be completed in 3 different areas— costume, scenic, lighting and sound
- Students are expected to complete one THET 479 course by the end of the 4th semester or 60 credits, and all 3 courses by the end of the 6th semester or 90 credits.

### AREA MENU: 21 credit hours required

Students must take courses from each Area as delineated below. Students may enter the Area Menu in the third semester, after completing the appropriate prerequisites.

#### Performance Area: 6 credit hours required

Courses marked with an "\*" require an audition. Students may only audition twice for each course requiring an audition for enrollment.

THET 210, THET 220, \*THET 310, \*THET 324, \*THET 325, THET 330, \*THET 411, \*THET 420, THET 424, \*THET 425, THET 430, \*THET 451, \*THET 452

#### Design/Production Area: 6 credit hours required

Some courses require departmental or instructor approval

THET 273, THET 282, THET 284, THET 371, THET 372, THET 373, THET 377, THET 380, THET 383, THET 384, THET 457/669, THET 465, THET 470, THET 471/672, THET 472, THET 473, THET 474, THET 475, THET 477/675, THET 481, THET 482, THET 483/679

#### History/Theory Area: 9 credits required (6 of which must be at the 400 level)

THET 290, THET 291, THET 293, THET 294, THET 350, THET 388, THET 488, THET 489

*All seminars offered at the 400/600 level require undergraduate students to obtain permission from the instructor and to have completed either THET 488 or 489.*

THET 408/608, THET 410/610, THET 486/686, THET 487/608, THET 498/698

### SUPPORTING COURSES: 15 credit hours

Supporting course credits may come from the Performance, Design/Production, or History/Theory Area Menus OR from any of courses listed in the Supporting Courses Menu OR any combination of the four menus. Students may also petition to their advisor for other suitable courses to be accepted, conditional on course work relating to their area of focus. For course prerequisites - Contact the Department that is offering the course or check Testudo online.

ARTH 200, ARTH 201, ARTH 250, ARTH 275, ARTH 290, ARTT 100, ARTT 110, ARTT 150, ARTT 200, ARTT 334, ARTT 353, ARTT 354, CLAS 374, CLAS 375, DANC 482, DANC 483, DANC 210, ENGL 304, ENGL 403, ENGL 404, ENGL 434, ENGL 450, ENGL 451, ENGL 454, LATN 301, LATN 302, MUSC 230, MUSC 330, SPAN 424, SPAN 436, SPAN 437, SPAN 456, SPAN 462, SPAN 473, THET 299, THET 386, THET 399, THET 406/606, THET 429 (up to 4 credits), THET 479 (2 credits beyond the 3 required), THET 499

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### Advising

Advising is mandatory each semester for undergraduate theatre majors. Students should go to the Department of Theatre website for instructions and to sign up for an advising appointment.

### Financial Aid

Scholarships and financial assistance may be awarded to prospective and enrolled students through a number of Creative and Performing Arts Scholarships and Theatre Patrons Association Scholarships. For further information visit the website at [www.theatre.umd.edu/Undergraduate](http://www.theatre.umd.edu/Undergraduate)

Course Code: THET

## WOMEN'S STUDIES (WMST)

### College of Arts and Humanities

2101 Woods Hall, 301-405-6877

[www.womensstudies.umd.edu](http://www.womensstudies.umd.edu)

Professor and Chair: Dill

Professors: Bolles, Moses, Rosenfelt, Zambrana

Associate Professors: Barkely Brown, Kim, King

Visiting Assistant Professors: Grossman

Affiliate Professors: Harley, Wilson (Afro-American Studies); Michel, Parks, Sies, Struna, Williams-Forsen (American Studies); Friedenber, Paolisso (Anthropology); Nieves (Architecture); Jones, Kerkham, Liu (Asian and East European); Greer (Chemical Engineering); Doherty, Hallett, Stehle (Classics); Aldoory, Parry-Giles, Tonn, Toth (Communication); Collins, Fuegi (Comparative Literature); Fassinger (Counseling and Personnel Services); Linn, Marshall (Curriculum and Instruction); Lin (Education, Policy and Leadership); Coletti, Donawerth, Kauffman, Leonardi, Lindemann, Logan, Nunes, Peterson, Ray, Rosenthal, Smith, Washington (English); Leslie (Family Studies); Letzter, Mossman (French and Italian Languages and Literature); Frederiksen, Oster, Strauch (Germanic Studies); Bush, Gullickson, Lyons, Muncy, Vaughan, Weinstein, Ziif (History); Beasley (Journalism); Robertson (Music); Fullinwider, Li (Philosophy and Public Policy); O'Brien, Scholnick (Psychology); Bianchi, DeRose, Desai, Milkie, Moghadam, Presser, Segal (Sociology); Cypess, Peres, Rodriguez (Spanish and Portuguese Languages and Literature); Schuler (Theatre)

To obtain information options for students interested in Women's Studies contact the Undergraduate Academic Advisor, Dept. of Women's Studies, 2101 Woods Hall; 301-405-6827.

### The Major

The Women's Studies major offers students a coherent but flexible program of study examining scholarship and theory on the history, status, contributions, and experiences of women in diverse cultural communities, and on the significance of gender as a social construct and as an analytical category.

### Requirements for the Major

Students will earn a total of 39-42 credit hours, distributed as indicated below. Drawing from approximately fifty course, many of which are cross-listed with other academic units, students will have the opportunity to design an emphasis within the major relevant to their special interests. A number of courses may count in more than one category. At least 30 credits must be at or above the 300 level. No course with a grade less than C may be used to satisfy the major. Students will design their programs in consultation with a Women's Studies advisor.

#### 1. Foundation Courses (18 credit hours)

|  |   |
|--|---|
| WMST 200 Introduction to Women's Studies: Women and Society    | 3 |
| or   |   |
| WMST 250 Introduction to Women's Studies: Women, Art & Culture | 3 |
| WMST 300 Feminist Reconceptualizations                         | 3 |
| WMST 350 Feminist Education Practicum and Analysis             | 6 |
| or   |   |
| WMST 380 Women's Studies Field Work and Analysis               | 6 |
| WMST 400 Theories of Feminism                                  | 3 |
| WMST 488 Senior Seminar  | 3 |

#### 2. Distributive Courses

##### Area 1: Arts and Literature (3 credit hours)

|   |   |
|---|---|
| WMST 241 Women Writers of French Expression in Translation (X-listed as FREN241)              | 3 |
| WMST 250 Introduction to Women's Studies: Women, Art, and Culture                             | 3 |
| WMST 255 Introduction to Literature by Women (X-listed as ENGL255)                            | 3 |
| WMST 275 World Literature by Women (X-listed as CMLT 275)                                     | 3 |
| WMST 281 Women in German Literature and Society (X-listed as GERM281)                         | 3 |
| WMST 348 Literary Works by Women (x-listed as ENGL348)  | 3 |
| WMST 408 Special Topics in Literature by Women before 1800 (X-listed as ENGL 408)             | 3 |
| WMST 444 Feminist Critical Theory (X-listed as ENGL 444)                                      | 3 |
| WMST 448 Special Topics in Literature by Women of Color* (X-listed as ENGL448)                | 3 |
| WMST 458 Special Topics in Literature by Women after 1800 (X-listed as ENGL458)               | 3 |
| WMST 466 Feminist Perspective on Women in Art (X-listed as ARTH466)                           | 3 |
| WMST 468 Feminist Cultural Studies  | 3 |
| WMST 481 Femmes Fatales and the Representation of Violence in Literature(X-listed as FREN481) | 3 |
| WMST 496 African-American Women Filmmakers* (X-listed as THET 496)                            | 3 |
| FREN 482 Gender and Ethnicity in Modern French Literature                                     | 3 |

##### Area II: Historical Perspectives (3 credit hours)

|   |   |
|---|---|
| WMST 210 Women in America to 1880(X-listed as HIST 210)                                   | 3 |
| WMST 211 Women in America Since 1880 (X-listed as HIST 211)                               | 3 |
| WMST 212 Women in Western Europe, 1750-present (X-listed as HIST212)                      | 3 |
| WMST 320 Women in Classical Antiquity (X-listed as CLAS 320)                              | 3 |
| WMST 453 Victorian Women in England, France, and the United States (X-listed as HIST 493) | 3 |
| WMST 454 Women in Africa* (X-listed as HIST 494)  | 3 |
| WMST 455 Women in Medieval Culture and Society (X-listed as HIST495)                      |   |
| WMST 456 Women in the Middle East*  | 3 |
| WMST 457 Changing Perceptions of Gender in the US: 1880-1935 (X-listed as HIST 433)       | 3 |
| AASP 498W Black Women in United States History*   | 3 |
| AMST 418J Women and Family in American Life   | 3 |
| HIST 309 Proseminar in Historical Writing: Women's History                                | 3 |

##### Area III: Social and Natural Sciences (3 credit hours)

|  |   |
|--|---|
| WMST 200 Introduction to Women's Studies: Women and Society                  | 3 |
| WMST 313 Women and Science (X-listed as BSCI 313)                            | 3 |
| WMST 324 Communication and Gender (x-listed as COMM 324)                     | 3 |
| WMST 325 Sociology of Gender (X-listed as SOCY 325)                          | 3 |
| WMST 326 Biology of Reproduction (X-listed as BSCI 342)                      | 3 |
| WMST 336 Psychology of Women (X-listed as PSYC 366)                          | 3 |
| WMST 360 Caribbean Women*  | 3 |
| WMST 410 Women in the African Diaspora*                                      | 3 |
| WMST 420 Asian-American Women*   | 3 |
| WMST 425 Gender Roles and Social Institutions                                | 3 |
| WMST 430 Gender Issues in Families (X-listed as FMST 430)                    | 3 |
| WMST 436 Legal Status of Women (X-listed as GVPT 436)                        | 3 |
| WMST 452 Women and the Media (X-listed as JOUR 452)                          | 3 |
| WMST 471 Women's Health (X-listed as HLTH 471)                               | 3 |
| WMST 493 Jewish Women in International Perspective*                          | 3 |
| WMST 494 Lesbian Communities and Difference*                                 | 3 |
| AASP 498F Special Topics in Black Culture: Women and Work*                   | 3 |
| CCJS 498 Special Topics in Criminology and Criminal Justice: Women and Crime | 3 |
| SOCY 498W: Special Topics in Sociology: Women in the Military                | 3 |
| *Fulfills Women's Studies Multi-Cultural Requirement                         |   |

#### 3. Courses in Cultural Diversity (6 credit hours)

Approved courses are noted with an asterisk in section 2, above. Courses in this category may overlap with other requirements

#### 4. Student-Developed Emphasis (9 credit hours)

Each student, with the help of the Academic advisor, will design an emphasis relevant to their special interests. Courses will ordinarily be drawn from the more than 50 courses approved for the major; in some instances, students may secure permission to include other courses.

## 5. Electives

Students should select their electives from the full list of courses for the major. The number of credit hours will vary depending on the individual student's program, but should bring the total number of semester credit hours to at least 39.

## JOINT MINOR IN BLACK WOMEN'S STUDIES

### College of Arts and Humanities

2101 Woods Hall, 301-405-6877  
[www.umd.edu/wmst](http://www.umd.edu/wmst)

### College of Behavioral and Social Sciences

2169 Lefrak Hall  
[www.bsos.umd.edu/aasp](http://www.bsos.umd.edu/aasp)

See African American Studies Department or Women's Studies Department for faculty roster.

The joint minor in Black Women's Studies focuses on the lives and experiences of women of Africa and the African Diaspora. As a specialty in the fields of Women's Studies and African American Studies, it will provide students with tools for understanding the social and cultural contexts in which race, gender, class, sexuality, ethnicity, nation and other dimensions of difference intersect to influence the lives and experiences of Black women.

Fifteen (15) credits of coursework are required, distributed below. A number of courses may count in more than one category. No course with a grade less than C may be used to satisfy the minor. Students will design their program in consultation with the Women's Studies or African American Studies advisor. No more than two courses may count toward a major in African American Studies of Women's Studies.

### Foundation courses (6 credits)

WMST263/AASP203 Introduction to Black Women's Studies OR  
 WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community  
 AASP313/WMST314 Black Women in U.S. History

### Distributive Requirements (9 credits)

#### Area I – Comparative or Non-US Course – indicated by a \* below (3 credits)

#### Area II – Humanities (3 credits)

WMST263/AASP203 Introduction to Black Women's Studies  
 THET240 African Americans in Film and Theater  
 \*ENGL362 Caribbean Literature in English  
 \*FREN478B Themes and Movements of French Literature in Translation: Francophone Women Writers

#### Area III – Social Sciences (3 credits)

WMST265/AASP213 Constructions of Manhood and Womanhood in the Black Community  
 HIST319 Women and the Civil Rights Movement  
 \*WMST360 Caribbean Women  
 \*WMST410 Women of the African Diaspora  
 WMST488 Senior Seminar—Black Women in the Public Eye  
 AASP493 Feminist and Nationalist Thought in the Black Community  
 WMST498 Black Feminist Thought  
 WMST498 Womanisms and Feminisms: Theories and Methods (proposed course)  
 AASP483 Gender, Sexuality and the Black Family

## Advising

African American Studies or Women's Studies undergraduate advisor.

## Honors

The Honors Program is designed to give students the opportunity to pursue rigorous interdisciplinary research and writing. Interested students who have a GPA of at least 3.0 should apply in their junior year. Students are required to take six credits of upper-level honors or honors-options courses and an honors seminar (WMST 488H), as well as write and defend a thesis.

## Advising

Advising is mandatory for all majors each semester.

Course Code: WMST

## ZOOLOGY

Departments in the College of Chemical and Life Sciences have been reorganized. Courses in zoology are now offered by the Department of Biology.

## OTHER FOR-CREDIT PROGRAMS

### Air Force Reserve Officer Training Corps Program (AFROTC)

Aerospace Studies Program, 301-314-3242  
 2126 Cole Student Activities Building  
 Director: Colonel Ernie Haendschke  
[www.afrotc.umd.edu](http://www.afrotc.umd.edu)

The Air Force Reserve Officer Training Corps (AFROTC) provides students the opportunity to earn a commission as a second lieutenant in the United States Air Force while completing their undergraduate degree. AFROTC scholarship programs provide scholarships to high school and in-college students on a competitive basis.

For more information, see Office of Undergraduate Studies section in Chapter 6.

### Army Reserve Officer Training Corps Program (ROTC)

1150 Cole Student Activities Building  
 Director: Lieutenant Colonel Dennis McFadden  
 301-314-9238  
[www.armyrotc.umd.edu](http://www.armyrotc.umd.edu)

The Army Reserve Officer Training Corps offers students the opportunity to earn a commission as a Second Lieutenant in the United States Army (Active, Reserve, or National Guard) while completing their undergraduate degree.

For more information, see Officer of Undergraduate Studies section in Chapter 6.

### College Park Scholars Program (CPSP)

1125 Cumberland Hall, 301-314-CPSP (2777)  
 Executive Director: Greig Stewart  
[www.scholars.umd.edu](http://www.scholars.umd.edu)

College Park Scholars is an innovative, two-year living/learning program for academically talented students. Admission is by invitation. Upon admission to the program, Scholars choose one of the 12 multidisciplinary academic programs as a focus, and have an opportunity to live together with other students in that program in specially designated College Park Scholars' residence halls.

For more information, see Office of Undergraduate Studies section in Chapter 6.

### Gemstone

0102 Ellicott Hall  
 Faculty Director: Dr. James Wallace  
[www.gemstone.umd.edu](http://www.gemstone.umd.edu)

Gemstone is a four-year program whose students come from many different majors and with a variety of interests. They have a unique opportunity to explore the interconnections between Science, Technology, and Society in a program involving special GEMS courses, but most importantly as members of undergraduate research teams. Under the guidance of faculty mentors, Gemstone students carry out interdisciplinary research on problems that involve science and/or technology. Rather than merely considering these problems from a technical point of view, Gemstone research projects often take into consideration history, ethics, politics, sociology, psychology and business among other perspectives. Some of the topics that recent Gemstone students have worked on include: the use of thermal energy from the human body to power small electrical devices, remediation of soil polluted with heavy metals using biotechnology, promotion of the use of tidal wetlands for shoreline erosion control around the Chesapeake Bay, development of "smart" pavement markers for traffic control, implementation of inclusive recreational programs for children with disabilities, investigation

## 154 Study Abroad Programs

of the dangers of electro-magnetic pulses used by terrorists, and development of a supplemental teaching kit to promote multi-cultural education for fourth graders. Students in the Gemstone Program select their research topics during their freshman year through a discussion-based process led by upper class Gemstone students. Team research begins in earnest at the beginning of the sophomore year and continues into the senior year when each team writes a team thesis and then defends it in front of a distinguished panel made up of individuals from academia, industry, and government. Students who successfully complete the Gemstone Program receive the Gemstone Citation, which appears on their transcript.

What Gemstone provides participants is the experience of learning to do original research with a team of high achieving students under the supervision of a faculty mentor. It also makes opportunities available for students to develop leadership and citizenship qualities. Less tangible but of equal importance, the Program exists as a living-learning environment in which its students are supported by the Gemstone staff, mentors and their fellow students in both their academic endeavors and some social activities.

### University Honors Program

Anne Arundel Hall, 301-405-6771  
Director: Dr. Barbara L. Thorne  
[www.honors.umd.edu](http://www.honors.umd.edu)

The University Honors Program offers special educational opportunities and resources to students with exceptional academic talents. Admission is by invitation. Honors seminars offer small class size (capped at 20 students) academic experiences characterized by active participation, intensive writing, and outstanding faculty who encourage critical thinking and innovation.

For more information, see Office of Undergraduate Studies in Section 6.

## Study Abroad Programs

1101 Holzapfel Hall, 301-314-7746  
Email: [studyabr@deans.umd.edu](mailto:studyabr@deans.umd.edu)  
[www.umd.edu/studyabroad](http://www.umd.edu/studyabroad)  
Associate Director: Michael Ulrich

The goal of the Study Abroad Office is to enable students to incorporate a summer, winter, semester, or year abroad into their degree program at Maryland. Study abroad increases awareness of other cultures and languages, while providing a comparative international perspective. Many students find study abroad to be essential for their major or career plans. Others view it as part of their liberal arts education.

### Advising and Information

In addition to coordinating the University of Maryland's study abroad programs, the Study Abroad Office staff offers advising to all students interested in studying abroad. The office's resource library provides information on programs offered by other universities. The staff also assists students in obtaining credit for their experience abroad. Dependent on departmental approval, students may use study abroad to enrich their programs and to fulfill CORE requirements and electives.

### Maryland Study Abroad During the Academic Year

#### Semester/Year Programs

**Study In London:** Students take courses through the University of Maryland and the London Metropolitan University. Classes are offered in the humanities, business, social sciences, and sciences. Students live in dorms or in flats with other program participants. Fall or spring semester or year.

**Study in Nice, France:** Students take courses through the University of Maryland and the University of Nice. Classes are offered in French language, civilization, and literature. Students live in homestays or apartments. Fall or spring semester or year.

**Study in Rome, Italy:** Students take courses in English at the American University of Rome (AUR). AUR offers instruction in the liberal arts, business, Italian language and culture, and international studies. The program is administered by Towson University. Fall or spring semester.

**Study in Australia:** Students take courses at Macquarie University, approximately 20 minutes from Sydney. Classes are offered in most disciplines. Fall or spring semester or year.

**Denmark's International Study Program:** Students take courses through DIS in Copenhagen. The program offers courses in English, focusing on humanities and social sciences, international business, marine biology, environmental studies, early multi-cultural education, and medical practice and policy. Fall or spring semester or year.

**Study in Leiden, The Netherlands:** Students study at Leiden University. Many courses are offered in English in disciplines such as Dutch language and culture, law and justice, archaeology, Asian studies, biomedical studies, English language and literature, political science and psychology. Fall or spring semester or year.

### Exchange Programs

The Study Abroad Office administers reciprocal exchanges with specific universities in **Argentina, Austria, Brazil, England, Germany, Hong Kong, Japan, Korea, and Sweden**. Unlike students on many semester programs, exchange students are directly enrolled as full-time students at the host institution of their choice. Exchange students are expected to be independent and interested in a true immersion experience during their semester abroad. Exchanges are often related to specific academic departments and usually require a language background. All exchanges require at least a 3.0 grade point average. Many exchanges carry full-tuition scholarships.

Exchanges are available with the following universities: In Argentina, a complete curriculum is offered at the Universidad de San Andres. In Austria, students attend the University of Vienna. In Britain, students can study at: University of Kent for government and politics majors; Kingston University for chemistry majors; University of Sheffield for English and American Studies majors; University of Lancaster for math and other majors; University of Bristol for philosophy majors; University of Surrey for sociology majors; University of Keele for criminology and other majors; and University of Liverpool for history majors. In Brazil, exchange opportunities are available at Pontificia Universidade Catolica or Universidade Federal Fluminense in Rio de Janeiro and at the Universidade Sao Paulo. In Germany, exchanges are available with the University of Tubingen and the Gesamthochschule Kassel. In Hong Kong, students can study at the University of Hong Kong. In Japan, student may study intensive Japanese language at Keio University or Kobe University; language and culture at Rikkyo University; or humanities, social sciences, sciences and engineering at Hiroshima University or Chiba University. In Korea, students can attend Yonsei University or Ewha Women's University. In Sweden, students can study at Uppsala University.

### Winter Term

New and exciting programs are offered every year. At the time of printing, Winter Term 2007 programs were being developed. In 2006, the following Winter Term programs were offered:

#### Argentina: "Anthropological Fieldwork and Experiences"

"Anthropological Fieldwork and Experiences in Argentina: The Relevance of Context and Place" (ANTH 468Q, ANTH 688Q, HONR 348E; 3-credits) exposes students to the work developed by anthropologists in Argentina and to regional varieties in anthropological practice by spending one week at three selected sites of anthropological production.

#### Argentina: "The Politics of Globalization"

"Politics of Globalization" (SOCY 498W/LASC 458A; 3 credits) will evaluate questions of development through discussion seminars and targeted field trips in various cities. Students will visit with representatives of multilateral institutions, state agencies and nongovernmental organizations to explore the extent to which a new emerging consensus on poverty and inequality is likely to advance the construction of democracy and social equity in the hemisphere.

#### Belize: "Mayan Culture & the Interface between Rainforests and Coral Reefs"

"Mayan Culture and the Interface between Tropical Rainforests and Coral Reefs" (BIOL 288; 2-credits) is divided into two parts. The first part will introduce students to present-day archeological sites that have been discovered recently and which are defined as some of the major sites of the Mayan culture. The second part will center on the tropical environment of Belize, which is home to rainforests and the second largest barrier reef in the world.

#### China/Vietnam: "The Value of Water – Culture and Sustainable Development"

"The Value of Water: Culture and Sustainable Development" (GVPT 389A, WORLD 318D, GVPT 888; 3 credits) explores the countries' internal and transboundary challenges and opportunities, focusing on the roles of women and nongovernmental organizations in sustainable development.

With the two fastest growing economies in Asia, the countries face challenges to make their economies, infrastructure, and societies sustainable.

**Costa Rica: “Exploring Society and Culture through Service-Learning”**

“Exploring Society and Culture through Service Learning” (WRDL 318C; 3 credits) will encourage students to explore issues and ideas of “diversity,” global society, “multiculturalism,” and power in the context of Costa Rican and Central American society and culture. Critical thinking and reflection, key components of service learning, are incorporated into this course through discussion sessions and writing workshops.

**Costa Rica: “Sustainable Tropical Ecosystems”**

Sustainable Tropical Ecosystems (NRSL 499C, HONR 379K; 2 or 3 credits) is developed and taught jointly by UMD and the University of Costa Rica. Students will be introduced to tropical ecosystems and the people of Costa Rica, explore environmental consequences and the role of sustainability in tropical agricultural development and be familiarized with the concepts of ecotourism.

**England: “London – Media with an Accent”**

The purpose of “Scholars in London II: The Media and the Arts” (CPSP 379L, JOUR 459; 3 credits), conducted in both College Park and London, is to examine British print and broadcast media and compare it with media in the U.S. Students will explore the socio-economic, cultural, historical, and political influences on media development in both Britain and the U.S., and will analyze their impact on each country’s media laws, patterns of ownership and regulation, and mechanisms of delivery, as well as the nature and content of available media products.

**France: “Montpellier - French Language and Culture on the Mediterranean”**

“Maryland in Montpellier: French Language and Culture on the Mediterranean” (FREN 204 or 311; 3 credits) is designed for students with intermediate competence and combines classroom work, extracurricular excursions, and a family stay. The goals of the program are to continue language learning in an intensive format, to familiarize students with an area of France that has been romanticized in the American psyche, and to strengthen students’ cross-cultural knowledge and sensibility.

**Germany: “Germany in the New Europe”**

“Germany and the New Europe: Politics, Business and Culture” (GVPT 388T, BMGT 398B; 3-credits) focuses on modern German politics, business, and culture. The course is sponsored by the Robert H. Smith School of Business and the Department of Government and Politics. Through lectures, readings, and field visits, students will explore Germany’s place in the New Europe, and how German and European political and business cultures and institutions were shaped and operate today.

**India: “Understanding India”**

“Understanding India” (HONR 2680; 3 Credits) is an interdisciplinary course in art, architecture, religion, and cultural history. It focuses on North India, surveying religious traditions and sites of historical importance. Students will do some preparatory work before departure, selecting an area of study and reading about it. They will continue to investigate their chosen subject area on tour.

**Ireland: “Civil Society and the Peace Process”**

“Civil Society and the Peace Process” (BSOS 388V; 2 credits) introduces students to civil society and the peace process in the Republic of Ireland and Northern Ireland. By working with faculty and students at universities in Galway City, Belfast, and Dublin through community service learning, participants will learn directly about how civil society shapes the future of Ireland.

**Italy: “Culture, Heritage and Economy”**

The course “Culture, Heritage and Economy” (ANTH 4480, ECON 314, HONR 328R; 3 credits) stresses the interplay of culture, society, and economic life. In particular, it examines how our understanding of our cultural heritage influences our concept of ourselves, with the rich heritage of Italy serving to illustrate this process. Participants will visit, Ascea, Velia, Paestum, Pompeii, Stabia, Naples, Rome and Florence.

**Italy: “Ancient Greek and Roman Heritage in Context”**

“Classical Foundations: Ancient Greek and Roman Culture in Context” (Classics 100; 3-credits) will explore Greek and Roman classical antiquity. Students will visit Greek temples, Ancient Roman cities, Mediterranean islands, see great works of art and sample incredible food. Participants will also explore classical sites such as Rome, Pompeii, Herculaneum, Oplontis, Paestrum, Naples, and Florence.

**Italy: “Genoa - Italian Language and Culture”**

UMD, in collaboration with the Consortium University of Genoa, offers “Italian Language and Culture” (ITAL 101, ITAL 102; 4-credits), located at the Centro Internazionale di Studi Italiani in Genoa, Italy. The goal is to provide students

total immersion in the language and culture of Italy. This communicative and totally interactive approach creates a more rapid and effective language acquisition process, while broadening cultural awareness.

**Japan: “A View from the Performing Arts”**

“A View from the Performing Arts” (HONR 379J, JAPN 499J, THET 499J; 3 credits) is divided into two parts. Students will spend the first few days on campus, studying the major genres of the performing arts and important sites that relate to the repertory in Japan. The class will then travel to Japan to gain personal insight into the community and craft of performing arts. They will also have the chance to reflect upon individual and group interactions in Japanese society.

**Korea: “Transformation of Korean Society – Gender, Culture and Political Economy”**

“Transformation of Korean Society: Gender, Culture and Political Economy” (WMST 498A, ANTH 468K, SOCY 398B; 3 credits) examines the intersection of gender, culture and political economy in contemporary Korean society through first hand experiences. The main question that is explored throughout the course is what kind of modern, industrial society South Korea is becoming as a consequence of all these rapid economic and social changes.

**Lesotho/South Africa: “World Issues - Post-Apartheid Access”**

“Exploring World Issues: South Africa and Lesotho” (WRDL 318A; 3 credits) will examine post apartheid access to many South Africa’s major structures and the implications of such access to its neighboring country of Lesotho. (i.e. education, economy, politics, health, arts and culture)

**Mexico: “Cultural Competence in Human Services”**

“Cultural Competence in Human Services: A Mexican Immersion Experience” (FMST 498C, FMST 698C; 3-credits) will provide students with an intensive immersion experience and structured opportunities to acquire cultural competence in working with and communicating with Spanish-speaking clients. Participants will take field visits and have opportunities to conduct interviews at government and non-profit agencies to understand their goals, organizational structure, and professional practices.

**Netherlands: “Maastricht - International and Multi-Cultural Perspectives on Education”**

“Maastricht: International and Multicultural Perspectives in Europe” (HONR 248D, EDCI 368B; 3-credits) will focus on the study of multicultural perspectives and international education issues both in America and other parts of the world. The course will begin with a week of coursework in College Park and then students will spend the last two weeks in The Netherlands, with Maastricht as the home base and a visit to Amsterdam.

**Spain: “Cultures of the “Contact Zone” – Seville, Al-Andalus and the Atlantic World”**

“Cultures of the Contact Zone: Seville, Al-Andalus, and the Atlantic World” (SPAN 225; 3 credits) explores the Mediterranean and the Transatlantic contexts that have influenced and shaped Spain’s history, identity, cultural and artistic expressions. Particular attention will be paid to the so-called convivencia period, when Jews, Muslims, and Christians co-existed in medieval Spain and the repercussions of such legacy. The course will also look at the flourishing of the Spanish empire, its expansion and how this process changed forever the Old World.

**Summer Programs**

New and exciting programs are offered every year. In 2006, the following summer programs were offered:

**Argentina, Brazil, and Uruguay: “The New Politics of Globalization: Democratization & Civil Society Activism in Argentina, Brazil, and Uruguay”**

This two month study abroad course (6 Credits) examines and compares the contemporary politics of globalization and democratization in Argentina, Brazil, and Uruguay first-hand. Students will participate in field visits and exchanges with relevant local actors to probe the significant similarities and differences between these South American nations which form the cores of the MERCOSUR project for regional political and economic integration, and are among the principal interlocutors of the United States in negotiating a Free-Trade Area of the Americas (FTAA).

**Belgium and France: Monuments of War, Sites of Peace: European Archaeological Heritage.**

“Monuments of War, Sites of Peace: European Archaeological Heritage” (ANTH 298E/448E, HONR248J and CPSP379; 3 Credits) surveys the rich and varied archaeological and historic heritage of Flanders and Northern France. In two weeks of study and travel in the heart of Europe, students will have the opportunity to uncover the past themselves, and to learn about how present day research, interpretation, and tourism development affect the ways the past is preserved and presented to the public.



## 156 Study Abroad Programs

### **Brazil: “Peoples and Cultures of Brazil: Issues in Social and Environmental Conservation”**

“Peoples and Cultures of Brazil: Issues in Social and Environmental Conservation” (6 credits, TBD) provides students with a glimpse of the rich cultural and landscape diversity of Brazil while it also invites participants to consider important implications of cultural and environmental preservation. During the three and a half week program, students will visit two unique sites, an indigenous reservation and a colonial city.

### **Ecuador: The Galapagos: “A Close Encounter with Nature at the Interface of Geology and Evolution”**

Evolution” (GEOL 388; 3 credits) is divided into three parts with the Galapagos islands tour as the core. For the first part, students will meet for a series of 10 classes on campus covering major aspects of Galapagos Zoology, Botany, Geology, Ecology, Evolutionary Biology, and human issues. The second part of the course is the cruise. Students spend eight days visiting the Galapagos. A typical day involves two stops, which may involve either hiking or snorkeling. Destinations include the islands of San Cristóbal, Española, Santa Fe, Plazas, Santa Cruz, Rábida, Santiago, Isabela, Fernandina, Bartolomé, North Seymour. The itinerary also includes the Charles Darwin Research Station on Santa Cruz. In the final part, the group spends a day touring Quito, which arguably containing the world's finest Spanish colonial architecture.

### **England: “Honors Study Abroad”**

“Honors Study Abroad: British History, Literature and Culture in London” (3 credits) is an intense 3-week examination of British Culture on the ground, in London and at a number of other historic and literary sites in England. The course has six focal points: History, Literature, Drama, Architecture, Art, and Archaeology. Students will have lectures and visits in all these areas but will select three to concentrate on for their papers.

### **England: “Oxford - Honors Programme in Law, History, Politics and Society at Oxford University”**

Oxford: “Honors Programme in Law, History, Politics and Society” (4 credits) offers an in-depth look at British law, politics, and society. During the three-week program, students will have the opportunity for concentrated study in small seminar groups, taught by Oxford University faculty members. A general lecture series by prominent figures from the University of Oxford and elsewhere will also be offered. The program will allow students to take two course modules: one required two-credit course in “Law and Society” and one two-credit course of the student's choosing.

### **England: “London – Sport and Culture in the Global Marketplace”**

London: “Sport & Culture in the Global Marketplace” (KNES 389A, KNES 689J; 3 credits) is intended to provide advanced undergraduate and graduate students who are interested in international business, popular culture, sport and tourism, with first hand experience in, and a thorough understanding of, the rapidly expanding global sport marketplace. Particular emphasis is placed upon the manner in which British sport has become an important and instructive site at which globalizing and localizing forces intersect.

### **France: “Montpellier – French Language and Culture on the Mediterranean”**

Montpellier – French Language and Culture on the Mediterranean (FREN 204, FREN311; 3 credits) is a three-week immersion program that combines classroom work, extracurricular excursions, and a family stay. The three principle aims of the experience are to continue language learning in an intensive format, familiarize students with an area of France that has been romanticized in the American psyche, and strengthen students' cross-cultural knowledge and sensitivity. The program is designed for students with intermediate competence in French.

### **France: “Paris – Classical Myths in Europe”**

“Paris: Classical Myths in Europe” (CLAS170; 1 credit) explores the French capital with special attention to its classical heritage and to the “recycling” of classical myths in the art and public discourse of France. Paris, one of the world's most beautiful cities, is high on most people's lists of places to visit at least once in a lifetime. Everyone has heard of the Eiffel Tower, the Louvre, and the Champs-Élysées (named for the Elysian Fields of Greek myth). Less widely known is the fact that Paris holds treasures of classical Greek and Roman art. What's more, much French art from all periods up to the present draws its inspiration from the classical tradition, including the classical myths.

### **France: “Inside French Theatre – Acting and Movement Training”**

Paris: “Inside French Theatre: Acting and Movement Training at Friches Théâtre Urbain” (THET 386; 6 credits) is open to all students with permission of the instructor. It offers the unique opportunity to experience French theatre from the inside while creating several short performances with French theatre professionals. American students will study the performance techniques of Jacques Lecoq and experience how the training

is applied and expanded at Friches Théâtre Urbain, a thriving professional street theatre using movement, acrobatics, improvisation, and stilts. This is the only summer program of its kind offered to study abroad students from the United States.

### **Germany: “German Language in Tübingen”**

The University of Maryland, Department of Germanic Studies, in cooperation with the Eberhard-Karls-University of Tübingen, Germany conducts a four-week intensive language and culture program in August (6 credits). The International Summer University program at Tübingen attracts about 200 participants worldwide to study German language and culture. In addition to the academic program, the International Summer University offers a variety of activities throughout the state of Baden-Württemberg in order for students to obtain a vivid impression of German history, culture and contemporary issues.

### **Greece: “The Living Legacy”**

“Greece: The Living Legacy” (CLAS 308G) is a 3-credit course. Experience the vital energy that produced the classical masterpieces of ancient Greece in the beauty of their native setting: cloud-capped mountains where gods supped on nectar and ambrosia, sparkling blue seas dotted with thousands of islands, landscapes full of mythical echoes. Travel and study in Greece in June 2006, and you will relive the glories of the classical and Byzantine past while savoring the vibrant life of a modern European nation with its sparkling, new, Olympic look.

### **Ireland: “Exploring Literature for Children and Youth in Relation to Art and Culture”**

Ireland: “Exploring Literature for Children and Youth in Relation to Art and Culture” is a 3 credit course. This ancient Celtic land of poets and storytellers is an ideal site to explore literature as it relates to a society. Due largely to its location, Ireland has retained unique cultural traditions and architectural treasures stretching back to the Bronze Age, and further. By examining the customs, beliefs, and experiences of the Irish people, students will understand ways that a culture shapes its literature. Students will gain insight into their own world and will learn about perspectives of other peoples.

### **Italy: “Genoa – Italian Language and Culture”**

Genoa: “Italian Language and Culture” (ITAL103; 4 credits; or ITAL 497; 3 credits) is intended for students who want a total immersion experience in the language and culture of Italy. The aim of the program is to provide students in the accelerated sequence with the opportunity for a total immersion experience in the language and culture of Italy. Through studying language abroad, a communicative and totally interactive approach will contribute significantly to help students of Italian to progress more rapidly and effectively in the language acquisition process, while broadening their view of the world and increasing their cultural awareness.

### **Italy: “Architectural Identity, Place Making and Town Planning”**

Italy: “Architectural Identity, Place Making and Town Planning” (LARC 489A, HONR 338A; 3 Credits) offers students the opportunity to investigate Italy through architecture, public piazzas, and historical town planning. Students will communicate, through one of several methods, their observations, reactions and knowledge of the sites visited throughout Italy. Each student will communicate through either sketching, photography or writing and be responsible for researching and presenting one specific subject. In addition, students will be instructed in a one-hour daily lesson in conversational Italian.

### **Jamaica: “Ethnographic Fieldwork: Connections, Celebration, and Identity”**

Jamaica: “Ethnographic Fieldwork: Connections, Celebration, and Identity” (ANTH 498W /ANTH 698W, 6 credits) is organized around Emancipation Day and Independence Day festivities in Jamaica West Indies, one week of national celebration, and the major period of homecoming for Jamaicans living abroad. The course offers students the opportunity to learn or enhance their ethnographic research skills in observation and participant-observation and various methods of ethnographic interviewing (e.g., informal, semistructured, in-depth, and focus group interviews), by focusing on these homecomings, and the motivations for such returns. The course assumes that a primary motivation is related to the pull of family, friends, and nation, and the sense of home, and celebration. Students will be trained to explore these assumptions ethnographically.

### **Mexico: “Taxco –Spanish Language”**

The University of Maryland System, (UMS) in collaboration with the Centro de Extranjeros (CEPE) of the Universidad Autónoma de México (UNAM), offers an intensive Spanish language program in Taxco, Mexico, that is open to university students as well as to teachers of Spanish (6 credits). Applicants should have completed elementary Spanish (SPAN 101).

**Puerto Rico: "The Geography of Puerto Rico"**

GEOG 328/HONR 379M (3 credits) is a hands-on, regional geography field course, taught in English. Following in the rich tradition of Juan Ponce DeLeón, Puerto Rico's famous explorer, students who take this course will become explorers themselves as they spend 2 preparation days on campus and 11 days in Puerto Rico studying the physical and human geography of the island.

**Spain: "Salamanca and Barcelona"**

"Salamanca & Barcelona" (SPAN326 and SPAN311/312 or SPAN408X; 6 credits) seeks to develop the Spanish language proficiency and introduce the culture and life of Spain through active participation in academic courses, interaction with Spanish students, housing placements with Spanish families living in Salamanca and Barcelona, as well as different excursions throughout the cities and surrounding countryside.

**Western Europe: "HIV/AIDS in Western Europe"**

DIS, in cooperation with the University of Maryland, is continuing an innovative, six-week, six-credit summer program on HIV/AIDS in Western Europe (BSCI 279). During the first three weeks students will study in Copenhagen. In the second part of the program, students will embark on a 3-week study tour to London, Paris and Amsterdam. Students are obligated to enroll in both courses.

## PRE-PROFESSIONAL ADVISING AND PROGRAMS

### Pre-Law, Pre-Medicine, Pre-Dentistry, Pre-Veterinary Medicine, and Other Pre-Allied Health Programs

**Division of Letters and Sciences****Law and Health Professions Advising**

Law and Health Professions Advising  
0110 Hornbake Library, 301-405-2793  
[www.ltsc.umd.edu/lawhealth.html](http://www.ltsc.umd.edu/lawhealth.html)

**Pre-Professional Advising and Programs**

The Law and Health Professions Advising Office (LHPAO), part of the Division of Letters and Sciences, serves students interested in pursuing careers in Law, Allied-Health, or Medicine/Dentistry. The Office maintains limited information for pre-veterinary medicine programs and also encourages students interested in the veterinary profession to visit the Center for Public and Corporate Veterinary Medicine.

Advisors and staff in the LHPAO provide students with assistance with pre-professional planning, including individual and group advising, career preparation workshops, admission information for professional programs, and much more. Pre-professional program advising provides the academic and experiential foundations required for entrance into professional schools. Students may not declare pre-professional programs as the official undergraduate major. While Professional schools do not require, favor, or prefer specific majors, the pre-professional advisors can provide guidance concerning the choice of major. Undecided students may enter the Division of Letters and Sciences, but must adhere to the University of Maryland policy, that students declare a degree-granting major by the time they reach 60 credits.

### Health Professions Resource Library (for pre-professional students)

This library offers helpful resources in addition to information available from the individual professional associations mentioned under the programs described below. Located in the LHPAO, 0110 Hornbake, library resources include professional school catalogs and CDs, testing information and preparation materials. LHPAO staff encourages students to review information on careers and professional schools across the country.

**Pre-Law****Four-Year Baccalaureate Program**

Most law schools require applicants to have received a Bachelor's degree. No specific major is required. A wide variety of majors give students excellent preparation for law school. The bachelor's degree student will choose a major and plan an undergraduate experience in which they will be successful and that helps them acquire skills that are essential in preparing to perform well on the LSAT, in law school, and ultimately as a lawyer. These skills include imaginative and coherent thinking, critical reasoning, accurate and perceptive reading, and a strong command of the spoken and written language, including grammar.

In some cases, law schools will consider truly outstanding applicants with only three years of academic work. Law schools generally do not require prerequisite courses for admission into their programs, but do require that the student follow one of the standard programs offered at the student's undergraduate institution. The Law School Admission Council maintains information on admissions and LSAT testing: [www.lsac.org](http://www.lsac.org).

**Three-year Arts/Law Degree**

The University of Maryland, College Park has cooperative agreements with the University of Maryland, School of Law and with the University of Baltimore Law School. These agreements provide students at College Park, who are enrolled in any recognized major and meet certain qualifications, with the opportunity to enter law school one year early. The Three-year Arts/Law Degree Program serves students with exceptional records who are accepted to the aforementioned law schools following their third year of baccalaureate-level course work. The University of Maryland, College Park awards these students the baccalaureate degree in Arts/Law upon satisfactory completion of the first year in law school. Participation in the combined degree program at the University of Maryland does not guarantee admission to either of the aforementioned law schools.

This accelerated plan is only available with Maryland System schools and may not be an appropriate choice for all students. Students, who consider this program, should contact the pre-law advisor for more information. Detailed information is also available on the LHPAO website.

### Pre-Medicine (Allopathic, Osteopathic, Optometry and Podiatry)

**Four-Year Baccalaureate Program**

It is preferred that pre-medical students at the University of Maryland complete a four-year undergraduate degree prior to entrance into medical school. Students are encouraged to pursue a diversified curriculum, balancing humanities, social sciences and fine arts courses with science and mathematics courses. The four-year student will plan an undergraduate experience that includes courses to satisfy their selected major and pre-medical admission requirements. Students should seek pre-medical advising early in order to create an appropriate four-year pre-medical plan. The library area of LHPAO and the LHPAO website each provide specific information on each of the medical programs. The national associations: AAMC, [www.aamc.org](http://www.aamc.org) and AACOM, [aacom.org](http://aacom.org) provide current information for applicants.

**Early Assurance Program**

University of Maryland pre-medical students have an opportunity to apply to The George Washington University School of Medicine's Early Assurance Program. This program encourages talented and committed undergraduate sophomore students, who have achieved academic distinction, to gain a provisional early acceptance to the M.D. program. The George Washington University School of Medicine and Health Sciences makes the decision to accept a qualified student into the program. Selected sophomore students (rising juniors, when selected) are nurtured through their undergraduate experience at the University of Maryland. Upon successful completion of the undergraduate program and all delineated requirements, students are guaranteed admissions to The George Washington University School of Medicine and Health Sciences for a four-year M.D. degree program. Please visit LHPAO to learn more about this program; the pre-medical website offers detailed information and specific instructions.

**Pre-Dentistry**

The pre-professional program for pre-dental students provides advising for students preparing to apply to dental school. The recommendations of American dental schools and the requirements for a baccalaureate degree at the University of Maryland form the basis for the advising.

**Four-Year Baccalaureate Program**

Pre-dental students at the University of Maryland are encouraged to complete a four-year undergraduate degree, with a diversified curriculum, balancing humanities, social sciences and fine arts courses with science and mathematics courses, prior to entering dental school. Courses in which students work with their hands are also advised. Students in the four-year program, must plan an undergraduate experience that satisfies the requirements of their selected major, as well as pre-dental admission requirements. Students should seek pre-dental advising early in order to create an appropriate four-year pre-dental plan. The national associations: AAMC, [www.aamc.org](http://www.aamc.org) and AACOM, [www.aacom.org](http://www.aacom.org) provide current information for applicants.

## 158 Pre-Professional Advising and Programs

### **Three-year Arts-Dentistry Degree Program**

For highly motivated and academically talented students, the University of Maryland, College Park and University of Maryland School of Dentistry offer the three-year Arts-Dentistry Program. This program gives students the opportunity to apply to the University of Maryland School of Dentistry one year early. This accelerated program requires students to complete their dental school admission requirements in three years, as they apply to dental school at the end of the second year and the beginning of their third year. Competitive students must apply and be accepted by the University of Maryland Dental School. Students, accepted in the combined arts-dentistry program, receive the B.S. degree (Arts-Dentistry) after satisfactory completion of the first year at the dental school and upon the recommendation of the Dean of the School of Dentistry and approval of the University of Maryland, College Park. *Participation in the combined-degree program at the University of Maryland, College Park does not guarantee admission to the University of Maryland School of Dentistry.*

The LHPAO strongly urges incoming students interested in this combined-degree program to identify their interest and consult with the Pre-Health advisor very early in their academic career. Please visit the website for specific details and instruction.

### **Pre-Dental Hygiene**

The Pre-Dental Hygiene program prepares students for entrance into a professional curriculum for Dental Hygiene at institutions that offer Bachelor of Science in Dental Hygiene programs. *Pre-Dental Hygiene is not a Pre-Dental major and is not a degree-granting program at the University of Maryland, College Park.* A Baccalaureate degree program for a Bachelor of Science in Dental Hygiene (B.S.-D.H.) follows a 2+2 model. Students may complete two years of prerequisite courses at the University of Maryland, College Park, and then apply for admission into a professional school.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing dental hygiene prerequisites, the 4+2 model. In this case, students will complete degree requirements in their chosen major, as well as the pre-dental hygiene prerequisites for entrance into a professional dental hygiene program. The institution offering the degree confers a Bachelor of Science in Dental Hygiene upon successful completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Dental Hygienists' Association and the American Dental Association maintain information about individual B.S.-D.H. program prerequisites. See [www.adea.org](http://www.adea.org)

### **Pre-Nursing**

The Pre-Nursing program prepares students for entrance into a professional curriculum for Nursing at institutions that offer Bachelor of Science in Nursing programs. *Pre-Nursing is not a degree-granting program at the University of Maryland, College Park.* A Baccalaureate degree program for a Bachelor of Science in Nursing (B.S.N.) follows a 2+2 model also known as a "Traditional Baccalaureate" program. Students may complete two years of prerequisite courses at the University of Maryland, College Park, and then apply for admission into a professional school to complete two years of professional course work, which includes classroom, laboratory, and clinical education.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing approximately twenty to twenty-five credits of nursing prerequisites. This is the "Second Degree" or "Accelerated Second Degree" model. In this model, students complete degree requirements in their chosen major, as well as the nursing prerequisites for entrance into an accelerated B.S.N. program. The institution offering the program confers a Bachelor of Science in Nursing upon completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Association of Colleges of Nursing maintains specific information about individual nursing program prerequisites. See [www.aacn.edu](http://www.aacn.edu)

### **Pre-Occupational Therapy**

The Pre-Occupational Therapy program prepares students for entrance into a professional curriculum for Occupational Therapy at institutions that offer professional advanced degrees, including master or doctoral degrees. Community colleges and technical schools offer associate degrees or certificates to students who wish to become occupational therapy assistants. Some colleges offer Bachelor degrees in Occupational Therapy, while others offer combined Bachelor and Master degree programs.

Students who wish to enter the occupational therapy profession may choose from several educational paths; they should thoroughly research the different options to determine the best path to their career goals. University of Maryland students have the option of completing a four-year degree at College Park, in their selected major, in addition to completing occupational therapy prerequisites. They may then choose to complete a Post-Bachelor certificate, Master of Science or doctoral degree in Occupational Therapy offered by professional schools. Some states require a degree in occupational therapy prior to approving licensure to work as an occupational therapist in that state. The certificate cannot substitute for a degree. Students should become familiar with the laws of the state(s) in which they wish to work if they choose to pursue a certificate rather than a degree.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Occupational Therapy Association maintains specific information about individual program prerequisites. See [www.aota.org](http://www.aota.org)

### **Pre-Pharmacy**

The Pre-Pharmacy program prepares students for entrance into a professional curriculum for Pharmacy at institutions that offer a Doctor of Pharmacy (Pharm.D.) degree program. *Pre-Pharmacy is not a degree-granting program at the University of Maryland, College Park.* A Pharm.D. degree program follows a 2+4 model in which students complete two years of prerequisite courses at the University of Maryland, College Park and then apply for admission into a professional pharmacy school to complete four years of professional coursework, which includes classroom, laboratory, and clinical education.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing pharmacy school prerequisites, a 4 + 4 model. In this model, students complete degree requirements in their chosen major, as well as the pre-pharmacy prerequisites for entrance into a professional pharmacy program. The institution offering the program confers a Pharm.D. degree upon completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Association of Colleges of Pharmacy maintains information about individual Pharm.D. program prerequisites. See [www.aacp.org](http://www.aacp.org)

### **Pre-Physical Therapy**

The Pre-Physical Therapy program prepares students for entrance into a professional curriculum for Physical Therapy at institutions that offer professional advanced degrees, including master or doctoral degrees. *Pre-Physical Therapy is not a degree-granting program at the University of Maryland, College Park.*

The educational track a student follows in order to obtain a Master of Physical Therapy (M.P.T.) degree varies depending on the professional schools to which the student intends to apply and, importantly, the expected year of matriculation into the professional phase of Physical Therapy. Currently, the accepted, entry-level clinical degree to practice as a Physical Therapist is the M.P.T. Students may enter Master-level professional programs by two routes. By the first route, students complete sixty to ninety credits of prerequisites and then apply to the M.P.T. programs for which they completed the prerequisites. The length of time to complete the Master-level coursework is approximately two to three years. By the second route, students complete a Baccalaureate degree at the University of Maryland, College Park, in addition to the prerequisites required by individual professional schools. Students, choosing this option, complete two to three years of Master-level course work. Either route allows the student to earn an M.P.T. from the professional school the student attends.

Many physical therapy schools now confer doctoral degrees. For these schools, University of Maryland students need to complete a four-year degree in their selected major in addition to completing physical therapy prerequisites. Some physical therapy schools also require some health-care experience in the physical therapy field.

Several educational paths exist for students who wish to enter the physical therapy field. Students are encouraged to thoroughly research this profession and determine which educational path best leads to their particular career goals.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Physical Therapy Association maintains information about individual program prerequisites. See [www.apta.org](http://www.apta.org)

### Pre-Physician Assistant

The Pre-Physician Assistant (P.A.) program prepares students for entrance into a professional curriculum at institutions that offer professional advanced degrees or post-baccalaureate certificates. *Pre-Physician Assistant is not a degree-granting program at the University of Maryland, College Park.* At the University of Maryland, students may complete the necessary prerequisite courses required by the professional physician assistant programs to which they will be applying.

Several educational paths exist for students who wish to enter the physician assistant field. Due to the many variables in the educational options, students are encouraged to thoroughly research this profession and determine which educational path best leads to their particular career goals. Students should check the particular prerequisites of the P.A. educational programs that interest them.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Academy of Physician Assistants maintains information about individual program prerequisites. See [www.aapa.org](http://www.aapa.org)

### Other Health Programs:

The pre-biomedical science research and medical technology program prepares students for entrance into the professional curriculum for medical technologists and biotechnologists. *Pre-Medical Technology is not a degree-granting program at the University of Maryland, College Park.*

A degree program for a Bachelor of Science in Medical Technology (B.S.-M.T.) generally follows a 2+2 model. Students may complete two years of prerequisite courses at the University of Maryland, College Park and then apply for admission into a professional school to complete two years of professional coursework, which includes classroom, laboratory, and clinical education.

University of Maryland students also have the option of completing a four-year degree at College Park in their selected major, in addition to completing medical technology prerequisites, the 4 + 2 model. In this model, students complete degree requirements in their chosen major, as well as the pre-medical technology prerequisites for entrance into a professional medical technology program. The institution offering the program confers a Bachelor of Science in Medical Technology degree on completion of the program.

Prerequisites may change; students are strongly encouraged to contact professional programs for the most current requirements. The American Society of Clinical Pathologists and the National Accrediting Agency for Clinical Laboratory Sciences maintain information about individual B.S.-M.T. program prerequisites.

### Student Organizations and Honor Societies

See the web site for a list:  
[www.ltsc.umd.edu/lawhealth.html](http://www.ltsc.umd.edu/lawhealth.html)

### Pre-Veterinary Medicine

Katherine A. Feldman, DMV, MPH, DAC, VPM, Assistant Director  
Center for Public and Corporate Veterinary Medicine  
301-314-6820  
[kfeldman@umd.edu](mailto:kfeldman@umd.edu)

University of Maryland, College Park students in any major may prepare for admission to veterinary school by completing required courses. Students interested in veterinary medicine often enroll in the undergraduate degree programs in the College of Chemical and Life Sciences or the College of Agriculture and Natural Resources. The majority of pre-veterinary students in the College of Agriculture and Natural Resources major in Animal Sciences in the Science/Pre-professional option. Students should consult catalogs from the veterinary schools to which they are interested in applying. American Association of Veterinary Medical Colleges: [www.aavmc.org](http://www.aavmc.org).

Students should seek pre-veterinary advising through the Virginia-Maryland Regional College of Veterinary Medicine, 8075 Greenmead Drive, University of Maryland, College Park, MD 20742-3711, 301-314-6830, [kfeldman@umd.edu](mailto:kfeldman@umd.edu).

### Animal Science/Pre-Veterinary Medicine:

Students enrolled in the College of Agriculture and Natural Resources are eligible for a special degree program that confers a Bachelor of Science degree in Agriculture and Pre-Veterinary Medicine. Students who have completed 90 undergraduate credits, who satisfy certain conditions, and who matriculate in an accredited college of veterinary medicine, may apply the successful completion of thirty hours of their professional training towards the completion of their baccalaureate degree. See the Undergraduate Catalog entry for Animal Sciences for more details.

## UNDERGRADUATE CERTIFICATE PROGRAMS

African American Studies  
Asian American Studies  
Computational Science  
East Asian Studies  
International Agriculture and National Resources  
Latin American Studies  
Lesbian, Gay, Bisexual and Transgender Studies  
Science, Technology and Society  
Upper Division Certificate in Secondary Education  
Women's Studies

### Certificate Program Information and Requirements

#### African American Studies Certificate College of Behavioral and Social Sciences 2169 LeFrak Hall, 301-405-1158

The African American Studies Certificate program offers the opportunity to develop a specialization in African American studies while pursuing a major in another field. Certificate students learn about the social, economic, political, and cultural history of African American people through a concentration of courses (21 credit hours). Courses taken toward the certificate also may be used to satisfy CORE requirements and electives. Undergraduates in good standing may apply for the program by contacting the academic advisor of the African American Studies Department in 2169 LeFrak Hall. Students pursuing the certificate must meet the University's general education (CORE) and department requirements. See also department listing earlier in this chapter.

#### Asian American Studies (AAS)

1120 Cole Student Activities Building, 301-405-0996  
Interim Director: Timothy J. Ng, Ph.D.  
[www.aast.umd.edu](http://www.aast.umd.edu); [aast@umd.edu](mailto:aast@umd.edu)

The Asian American Studies Program (AAS) provides students with the opportunity to study critically the experiences of Asian Americans. Through an interdisciplinary approach, students examine the histories, communities, and cultures of Asian Americans as both distinctive from and connected to the broader themes of diversity, ethnicity, race, gender, and migration in the Americas. AAS offers an undergraduate certificate for students who wish to develop a specialization in Asian American studies alongside their degree pursuits.

For more information, see Office of Undergraduate Studies in Chapter 6.

#### Computational Science

**College of Computer, Mathematical and Physical Sciences**  
3103 Mathematics Building, 301-405-0924  
Director: Levermore  
[www.amsc.umd.edu](http://www.amsc.umd.edu)

For program requirements see Certificate in Computational Science in the section on Applied Mathematics and Scientific Computation earlier in this chapter.

#### East Asian Studies Certificate

**College of Arts and Humanities**  
2101B Francis Scott Key Hall, 301-405-4309

The Undergraduate Certificate in East Asian Studies is a 24-credit course of instruction designed to provide specialized knowledge of the cultures, histories, and contemporary concerns of the peoples of China, Japan, and Korea. It will complement and enrich a student's major. The curriculum focuses on language instruction, civilization courses, and electives in several departments and programs of the university. It is designed specifically for students who wish to expand their knowledge of East Asia and demonstrate to prospective employers, the public, and graduate and professional schools a special competence and set of skills in East Asian affairs.

Upon satisfactory completion of the courses, with a grade of C or better in each course, and recommendation by the Director of East Asian Studies, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. The student must have a bachelor's degree awarded by Maryland (must be College Park campus) previous to or simultaneously with an award of the certificate.

## 160 Undergraduate Certificate Programs

### Certificate Requirements

**CORE Courses:** The student is required to take:

1. HIST 284 East Asian Civilization I
2. HIST 285 East Asian Civilization II
3. Six semester hours of introduction to one of the following East Asian languages (Chinese, Japanese, or Korean):  
CHIN 101 Elementary Chinese I  
JAPN 101 Elementary Japanese I  
KORA 211 Introductory Reading for Speakers of Korean I  
KORA 212 Introductory Reading for Speakers of Korean II

Students with language competence equivalent to these language courses are exempted from the language requirement; such students are required to complete an additional six hours of electives in East Asian courses to fulfill the 24-credit requirement for the certificate.

**Electives:** Students must complete at least 12 hours of electives selected from four regular formally approved courses on East Asia in at least two of the following categories: (1) art history, (2) geography, (3) government and politics, (4) history, (5) language, linguistics, and literature, (6) music, and (7) women's studies. Nine of the 12 hours of electives must be upperdivision (300-400 level) courses. A maximum of three credit hours of special topics courses on East Asia will be allowed with the approval of the student's certificate advisor. No more than nine credits from any one department may be applied toward the certificate. No more than nine credits applied to the student's major may also apply to the certificate. In addition, no more than nine credits of the courses applied toward the certificate may be transferred from other institutions. Students are asked to work with their advisor in ensuring that the electives maintain an intercollegiate and interdisciplinary focus (at least three disciplines are recommended). Interested students should contact Dr. Marlene Mayo, Department of History, Francis Scott Key Hall, mmayo@umd.edu.

### International Agriculture and Natural Resources

#### College of Agricultural and Natural Resources

1104 Symons Hall, 301-405-2078

The Certificate in International Agriculture and Natural Resources is designed to enrich a student's major with a global perspective. The required courses focus on: language instruction; international aspects of the environment, agricultural production, development and sustainability, nutrition, and business; an experience abroad; and a capstone course regarding the student's travel abroad. Any student in good academic standing may participate in the certificate program.

#### Requirements for Certificate

The certificate requires at least 21 credits that may include courses taken toward other degree and CORE requirements. Upon successful completion of the courses, with a grade of C or better in each course and a recommendation of the Associate Dean of the College of Agriculture and Natural Resources, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. In order to receive the certificate, students must have completed all requirements for a bachelor's degree.

#### Foreign Language

6-8 credits in a foreign language

#### International Courses

At least 9 credits from the following list of courses, at least 3 of these courses must be in the College of Agriculture and Natural Resources for students not majoring in a program outside of the College of Agriculture and Natural Resources:

PLSC 303 International Crop Production  
NRSC 440 Crops, Soils, and Civilization  
AREC 365 World Hunger, Population, and Food Supplies  
AREC 433 Food and Agricultural Policy  
BMGT 392 Introduction to International Business Management  
BMGT 390 Competing on Quality in a Global Economy  
BSCI 365 International Pesticide Problems and Solutions  
GEOG 434 Agriculture and Rural Development  
NFSC 425 International Nutrition  
AREC 445 Agricultural Development, Population Growth, and the Environment  
ECON 440 International Economics  
GVPT 306 Global Ecopolitics  
GEOG 422 Population Geography

### Travel Study or Travel Abroad

Three to four credits of travel study or study abroad. Prerequisite: to have completed the foreign language course work. Prerequisite or co-requisite: six credits from the International Courses List. In order to qualify for the certificate, travel study and study abroad experiences require prior approval of Associate Dean of the College of Agriculture and Natural Resources. For approval, travel experience must demonstrate significant learning opportunities in areas related to agriculture and natural resources and cultural immersion.

### Travel Study Seminar

1 credit Travel Study Seminar. Prerequisite: completion of the travel study requirement.

This course will require student presentation of their travel experience including a paper, a poster presentation, as well as an oral presentation and discussion.

### Latin American Studies Certificate

#### College of Arts and Humanities

Latin American Studies Center

0128B Holzapfel Hall, 301-405-6456

The multidisciplinary certificate program in Latin American Studies is open to University of Maryland, College Park undergraduates in any major who are interested in international studies and Latin America. The undergraduate Certificate in Latin American Studies will be awarded to students who have completed 21 credits with a grade of C or better in the following areas.

#### Requirements for Certificate

##### A. Core curriculum for all certificate students (12 credits)

LASC/SPAN/PORT 234 Issues in Latin American Studies I  
LASC/SPAN/PORT 235 Issues in Latin American Studies II  
HIST 250 or HIST 251 Latin American History I or II  
LASC/SPAN/PORT 458 Senior capstone course in Latin American Studies

##### B. Additional courses in Latin American Studies (9 credits)

Nine credits are additional courses that must be chosen from an approved list and from at least two different departments. At least six credits must be at the 300- or 400-level. See Latin American Studies advisor for details.

##### C. Foreign Language Competency

All certificate students must demonstrate their competence in either Spanish or Portuguese. Competency may be proven with a grade of C or better in an intermediate-level course (PORT 204, SPAN 203) or higher. Native speakers of Spanish or Portuguese or students with extensive experience in these languages should consult with the Latin American Studies advisor. Interested students should contact Dr. Eyda Merediz, 2225 Jimenez Hall at emerediz@umd.edu or the LASC Center at 301-405-6459.

### Lesbian, Gay, Bisexual and Transgender Studies (LGBT)

1147 Tawes Fine Arts Building, 301-405-5428

Director: Dr. Marilee Lindemann

[www.lgbts.umd.edu](http://www.lgbts.umd.edu)

The program in Lesbian, Gay, Bisexual and Transgender Studies (LGBT) offers an interdisciplinary undergraduate certificate designed to examine the lives, experiences, identities and representations of LGBT persons, those who are today described as having a minority sexual orientation or who are gender transgressive.

For more information, see Office of Undergraduate Studies section in Chapter 6.

### Science, Technology and Society Certificate

1108 Chestertown Hall, 301-405-0527

[www.sts.umd.edu/certificate](http://www.sts.umd.edu/certificate)

The Science, Technology, and Society (STS) Undergraduate Certificate program offers students an excellent opportunity to advance their understanding of the complex relationships between science, technology, and society by concentrating their CORE and elective courses (like a college "minor"). STS courses have been carefully chosen to fit closely into CORE and major field requirements of most students. Therefore, almost all College Park undergraduates can fulfill the certificate requirements without taking additional courses by careful selection of the courses that fulfill their CORE

and elective requirements. The STS Certificate program is comprised of 21 credits of coursework (including a capstone course), a monthly colloquium, and an internship opportunity. This mixture of learning experiences helps to cultivate an intellectual and personal forum in which students and faculty can work closely together. This program provides students with an interdisciplinary thematic link for their general education requirements, and it offers a chance for mentored research in areas of personal interest.

### Certificate Requirements:

21 credits are necessary to complete the STS Certificate: 9 credits of Fundamental Courses and 12 credits of Elective Courses.

#### Fundamental Courses (9 credits):

21 credits are necessary to complete the STS Certificate: 9 credits of Fundamental Courses and 12 credits of Elective Courses.

Fundamental Courses (9 credits):

- A natural science or technology course satisfying CORE or a major and approved by the program director
- An introductory history of science and technology course (see program website)
- The senior STS capstone course (UNIV 401)

#### Elective Courses (12 credits):

- Students can choose from a list of over sixty approved courses representing a variety of topic areas relevant to the STS field from a host of disciplines (e.g., AMST, AREC, CPSP, ECON, GEMS, GVPT, HIST, HONR, MICB, NRSC, PHIL, SOCY, ZOOL). Over half of the electives also satisfy CORE Distributive Studies requirements. Two of the electives must be upper-level courses. (Please note: CORE Advanced Studies requires that two upper-level courses be taken outside the major after 56 credits. Upper-level STS courses satisfy this requirement. Check with your academic advisor in your major.) See program website for the complete list of electives.

Students must obtain advice and approval from the program director for their course choices. Students must maintain a minimum grade of "C" in each STS course. The STS program of study must include a minimum of 9 credits in upper division courses, 2 of which must be electives. It also may not exceed the following maximums: 9 credits of STS courses applied to the student's major; 3 credits of "Special Topics" or "Selected Topics" courses applied to the STS certificate; 9 credits of approved courses taken outside UMCP. Only 6 credits from courses with the AREC, ECON and GVPT prefixes may be used to satisfy the STS Certificate requirements.

### Upper Division Certificate in Secondary Education

#### College of Education

2311 Benjamin Building, 301-405-3324

[www.education.umd.edu/EDCI](http://www.education.umd.edu/EDCI)

See Department of Curriculum and Instruction earlier in this chapter.

### Women's Studies Certificate

#### College of Arts and Humanities

2101 Woods Hall, 301-405-6877

[www.umd.edu/wmst](http://www.umd.edu/wmst)

See Women's Studies Department for faculty roster.

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women that is designed to supplement a student's major. Any student in good standing may enroll in the certificate program by declaring her/his intention to the Women's Studies Undergraduate Advisor. For additional information contact the Women's Studies office, 301-405-6827.

### Requirements for Certificate

To qualify for a certificate in Women's Studies, a student will be required to earn 21 credits in Women's Studies courses, nine of which must be at the 300/400 level. No more than three credit hours of special topics courses may be counted toward the certificate. No more than nine credits which are applied toward a major may be included in the certificate program. No more than nine credit hours may be taken at institutions other than the University of Maryland. Each student must obtain a grade of C or better in each course that is to be counted toward the certificate. Of the 21 credits, courses must be distributed as follows:

### 1. Foundation Courses (9 credit hours)

|  |   |
|--|---|
| WMST 200 Introduction to Women's Studies: Women and Society    | 3 |
| or   |   |
| WMST 250 Introduction to Women's Studies: Women, Art & Culture | 3 |
| WMST 400 Theories of Feminism                                  | 3 |
| WMST 488 Senior Seminar  | 3 |

### 2. Distributive Courses

#### Area I: Arts and Literature (3 credit hours)

|   |   |
|---|---|
| WMST 241 Women Writers of French Expression in Translation (X-listed as FREN241)              | 3 |
| WMST 250 Introduction to Women's Studies: Women, Art, and Culture                             | 3 |
| WMST 255 Introduction to Literature by Women (X-listed as ENGL255)                            | 3 |
| WMST 275 World Literature by Women (X-listed as CMLT 275)                                     | 3 |
| WMST 281 Women in German Literature and Society (X-listed as GERM281)                         | 3 |
| WMST 348 Literary Works by Women (X-listed as ENGL348)  | 3 |
| WMST 408 Special Topics in Literature by Women before 1800 (X-listed as ENGL 408)             | 3 |
| WMST 444 Feminist Critical Theory (X-listed as ENGL 444)                                      | 3 |
| WMST 448 Special Topics in Literature by Women of Color* (X-listed as ENGL448)                | 3 |
| WMST 458 Special Topics in Literature by Women after 1800 (X-listed as ENGL458)               | 3 |
| WMST 466 Feminist Perspective on Women in Art (X-listed as ARTH466)                           | 3 |
| WMST 468 Feminist Cultural Studies  | 3 |
| WMST 481 Femmes Fatales and the Representation of Violence in Literature(X-listed as FREN481) | 3 |
| WMST 496 African-American Women Filmmakers* (X-listed as THET 496)                            | 3 |
| FREN 482 Gender and Ethnicity in Modern French Literature                                     | 3 |

#### Area II: Historical Perspectives (3 credit hours)

|   |   |
|---|---|
| WMST 210 Women in America to 1880(X-listed as HIST 210)                                   | 3 |
| WMST 211 Women in America Since 1880 (X-listed as HIST 211)                               | 3 |
| WMST 212 Women in Western Europe, 1750-present (X-listed as HIST212)                      | 3 |
| WMST 320 Women in Classical Antiquity (X-listed as CLAS 320)                              | 3 |
| WMST 453 Victorian Women in England, France, and the United States (X-listed as HIST 493) | 3 |
| WMST 454 Women in Africa* (X-listed as HIST 494)  | 3 |
| WMST 455 Women in Medieval Culture and Society (X-listed as HIST495)                      | 3 |
| WMST 456 Women in the Middle East*  | 3 |
| WMST 457 Changing Perceptions of Gender in the US: 1880-1935 (X-listed as HIST 433)       | 3 |
| AASP 498W Black Women in United States History*   | 3 |
| AMST 418J Women and Family in American Life   | 3 |
| HIST 309 Proseminar in Historical Writing: Women's History                                | 3 |

#### Area III: Social and Natural Sciences (3 credit hours)

|  |   |
|--|---|
| WMST 200 Introduction to Women's Studies: Women and Society                  | 3 |
| WMST 313 Women and Science (X-listed as BSCI 313)                            | 3 |
| WMST 324 Communication and Gender (X-listed as COMM 324)                     | 3 |
| WMST 325 Sociology of Gender (X-listed as SOCY 325)                          | 3 |
| WMST 326 Biology of Reproduction (X-listed as BSCI 342)                      | 3 |
| WMST 336 Psychology of Women (X-listed as PSYC 366)                          | 3 |
| WMST 360 Caribbean Women*  | 3 |
| WMST 410 Women in the African Diaspora*                                      | 3 |
| WMST 420 Asian-American Women*   | 3 |
| WMST 425 Gender Roles and Social Institutions                                | 3 |
| WMST 430 Gender Issues in Families (X-listed as FMST 430)                    | 3 |
| WMST 436 Legal Status of Women (X-listed as GVPT 436)                        | 3 |
| WMST 452 Women and the Media (X-listed as JOUR 452)                          | 3 |
| WMST 471 Women's Health (X-listed as HLTH 471)                               | 3 |
| WMST 493 Jewish Women in International Perspective*                          | 3 |
| WMST 494 Lesbian Communities and Difference*                                 | 3 |
| AASP 498F Special Topics in Black Culture: Women and Work*                   | 3 |
| CCJS 498 Special Topics in Criminology and Criminal Justice: Women and Crime | 3 |
| SOCY 498W: Special Topics in Sociology: Women in the Military                | 3 |
| *Fulfills Women's Studies Multi-Cultural Requirement                         |   |

### 3. Courses in Cultural Diversity (6 credit hours)

Students will select one course for a minimum of 3 credit hours. Approved courses are noted with an asterisk in section 2, above. Courses in this category may overlap with other requirements.

## 162 Minors

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### 4. Remaining Courses

The remaining courses may be chosen from any of the three distributive areas or from among any of the WMST courses including WMST 298 or 498: Special Topics and WMST 499: Independent Study.

### Advising

To obtain more information, contact the Undergraduate Advisor, 301-405-6827, or write to the Women's Studies Department, 2101 Woods Hall, University of Maryland, College Park, MD 20742

Course Code: WMST

### College of Health and Human Performance

Community Health  
Sport Commerce and Culture

*In 2004, the University Senate voted to phase out academic citations and replace them with minors. Students currently pursuing an academic citation should contact the respective department or program for information on this conversion process.*

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## MINORS

Students may wish to pursue a Minor in one of the areas of study listed below. Also see Minors in chapter 4. A current list of all minors may be found at: [www.provost.umd.edu](http://www.provost.umd.edu)

### A. James Clark School of Engineering

International Engineering  
Nanoscience and Technology  
Project Management

### College of Agriculture and Natural Resources

Agribusiness Economics  
Environmental Economics and Policy  
Landscape Management  
Resource and Agricultural Policy in Economic Development  
Soil Science

### College of Arts and Humanities

Ancient Greek Language and Literature  
Art History  
Black Women's Studies  
Business Italian  
Chinese Language  
Chinese Studies  
Classical Mythology  
English  
French Studies  
German Language, Literature, and Culture  
Italian Language and Culture  
Japanese  
Jewish Studies  
Korean Studies  
Latin Language and Literature  
Linguistics  
Music Performance  
Philosophy  
Portuguese Language, Literatures, and Cultures  
Religious Studies  
Rhetoric  
Russian Studies  
Spanish Language, Business, and Cultures  
Spanish Language and Cultures

### College of Behavioral and Social Sciences

Black Women's Studies  
Geographic Information Science  
Hearing and Speech Sciences  
International Development and Conflict Management

### College of Computer, Mathematical and Physical Sciences

Actuarial Mathematics  
Astronomy  
Atmospheric Chemistry  
Atmospheric Sciences  
Computer Science  
Earth History  
Earth Material Properties  
Hydrology  
Meteorology  
Physics  
Statistics  
Surficial Geology

### College of Education

Secondary Education

CHAPTER 8

Approved Courses

The following list includes undergraduate courses that have been approved as of April 2006. Courses added after that date do not appear in this list. Courses eliminated after that date may still appear. Not every course is offered regularly. Students should consult the Schedule of Classes to ascertain which courses are actually offered during a given semester.

COURSE NUMBERING SYSTEM

| Number  | Eligibility  |
|---------|--|
| 000-099 | Non-credit course  |
| 100-199 | Primarily freshman course  |
| 200-299 | Primarily sophomore course   |
| 300-399 | Junior, senior course not acceptable for credit toward graduate degrees                          |
| 386-387 | Campus-wide internship courses; refer to information describing Experiential Learning            |
| 400-499 | Junior, senior course acceptable for credit toward some graduate degrees                         |
| 500-599 | Professional School course (Dentistry, Architecture, Law, Medicine) or post-baccalaureate course |
| 600-899 | Course restricted to graduate students   |
| 799     | Master Thesis credit   |
| 899     | Doctoral Dissertation credit   |

AASP – African American Studies

**AASP 100 Introduction to African American Studies (3)** Significant aspects of the history of African Americans with particular emphasis on the evolution and development of black communities from slavery to the present. Interdisciplinary introduction to social, political, legal and economic roots of contemporary problems faced by blacks in the United States with applications to the lives of other racial and ethnic minorities in the Americas and in other societies.

**AASP 101 Public Policy and the Black Community (3)** Formerly AASP 300. The impact of public policies on the black community and the role of the policy process in affecting the social, economic and political well-being of minorities. Particular attention given to the post-1960 to present era.

**AASP 200 African Civilization (3)** A survey of African civilizations from 4500 B.C. to present. Analysis of traditional social systems. Discussion of the impact of European colonization on these civilizations. Analysis of the influence of traditional African social systems on modern African institutions as well as discussion of contemporary processes of Africanization.

**AASP 202 Black Culture in the United States (3)** The course examines important aspects of African American life and thought which are reflected in African American literature, drama, music and art. Beginning with the cultural heritage of slavery, the course surveys the changing modes of black creative expression from the 19th-century to the present.

**AASP 297 Research Methods in African American Studies (3)** Prerequisite: AASP100 or AASP202. For AASP majors only. Not open to students who have completed AASP299R. Credit will be granted for only one of the following: AASP297 or AASP299R. Formerly AASP 299R. Introduces African American Studies majors to the basic research skills, methodologies, sources, and repositories for studying African Diaspora. Students will be required to select a research topic, write a research proposal, develop an annotated bibliography, and in the process will be prepared for completing their senior thesis or other significant writing projects necessary to fulfill the requirements of the major.

**AASP 298 Special Topics in African American Studies (3)** Repeatable to 6 credits if content differs. An introductory multi-disciplinary and inter-disciplinary educational experience to explore issues relevant to black life, cultural experiences, and political, economic, and artistic development.

**AASP 299 Selected Topics in African American Studies (1-3)** Repeatable to 6 credits if content differs. An introductory multi-disciplinary academic exploration of the cultural, political, and economic issues relevant to Africans and African-Americans.

**AASP 301 Applied Policy Analysis and the Black Community (3)** Prerequisite: (AASP101 and ECON200) or (AASP101 and ECON201). Recommended: One semester of statistics. Development and application of the tools needed for examining the effectiveness of alternative policy options confronting minority communities. Review policy research methods used in forming and evaluating policies. Examination of the policy process.

**AASP 303 Computer Applications in African American Studies (3)** Prerequisite: STAT100 or SOCY201 or MATH111 or equivalent. Introduction to statistics and database processing software used in model estimation and simulation in policy analysis. Special emphasis on applications for applied research on policy problems confronting minority communities.

**AASP 305 Theoretical, Methodological and Policy Research Issues in African American Studies (3)** Prerequisites: AASP301 and (STAT100 or BMGT230 or PSYC200 or SOCY201 or ECON321 or equivalent course with permission of department). Formerly AASP 401. Theories and concepts in the social and behavioral sciences relating to problems in minority communities. Issues include validity and soundness of theoretical arguments, epistemological questions of various methodologies and the relationship between policy making and policy research.

**AASP 310 African Slave Trade (3)** Prerequisite: AASP100 or AASP202 or permission of department. Formerly AASP 311. The relationship of the slave trade of Africans to the development of British capitalism and its industrial revolution; and to the economic and social development of the Americas.

**AASP 312 Social and Cultural Effects of Colonization and Racism (3)** Prerequisite: AASP100 or AASP202. A comparative approach to the study of the social and cultural effects of colonization and racism on black people in Africa, Latin America and in the United States—community and family life, religion, economic institutions, education and artistic expression.

**AASP 313 Black Women in United States History (3)** Sophomore standing. Also offered as WMST314. Credit will be granted for only one of the following: AASP498W, AASP313, WMST314 or WMST498N. Formerly AASP 498W. Black American women's history is examined from slavery to the present. The principal focus of the readings discussions and student assignments will be based upon gaining a fuller understanding of the effect of race, class and gender on the life cycles and multiple roles of Black women as mothers, daughters, wives, workers and social change agents. A variety of primary source materials on black women's experiences will be utilized.

**AASP 314 The Civil Rights Movement (3)** Prerequisite: AASP100 or HIST157. Survey of the twentieth century civil rights movement from the desegregation of UM Law School through the National Black Political Congress in Gary in 1972. Major themes include leadership, legal and constitutional challenges, non-violence, Black Power, Pan-Africanism.

**AASP 386 Experiential Learning (3-6)** Prerequisite: Permission of department. Junior standing.

**AASP 396 Independent Study Non-Thesis Option (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisites: AASP297 (formerly:AASP299R), and AASP386. Senior standing. For AASP majors only. Credit will be granted for only one of the following: AASP396 or AASP397. A research seminar that allows African American Studies majors to complete an independent study research project in lieu of completing the AASP397: Senior Thesis. Students will examine various concepts of race, gender, labor and ethnicity in the seminar lecture component to be applied toward their specific research projects.

**AASP 397 Senior Thesis (3)** Prerequisite: Permission of department. Directed research in African American Studies resulting in the completion and defense of a senior thesis.

**AASP 398 Selected Topics in the African Diaspora (3)** Repeatable to 6 credits if content differs. Analysis of the historical experiences and cultures of Africans in the diaspora.

**AASP 400 Directed Readings in African American Studies (3)** Prerequisite: AASP100 or AASP202. The readings will be directed by the faculty of African American Studies. Topics to be covered will be chosen to meet the needs and interests of individual students.

**AASP 402 Classic Readings in African American Studies (3)** Prerequisite: AASP100 or AASP202. Classic readings of the social, economic and political status of blacks and other minorities in the United States and the Americas.

**AASP 411 Black Resistance Movements (3)** Prerequisite: AASP100. A comparative study of the black resistance movements in Africa and America; analysis of their interrelationships as well as their impact on contemporary pan-Africanism.

**AASP 441 Science, Technology, and the Black Community (3)** Prerequisite: AASP100 or AASP202 or HIST255 or permission of department. Scientific knowledge and skills in solving technological and social problems, particularly those faced by the black community. Examines the evolution and development of African and African American contributions to science. Surveys the impact of technological changes on minority communities.

**AASP 443 Blacks and the Law (3)** Prerequisite: AASP100 or AASP202 or HIST255 or permission of department. The relationship between black Americans and the law, particularly criminal law, criminal institutions and the criminal justice system. Examines historical changes in the legal status of blacks and changes in the causes of racial disparities in criminal involvement and punishments.

**AASP 468 Special Topics in Africa and the Americas (3)** Repeatable to 6 credits if content differs. Cultural, historical and artistic dimensions of the African experience in Africa and the Americas.

**AASP 478 Humanities Topics in African American Studies (3)** Repeatable to 6 credits if content differs. Advanced studies in the humanities, often requiring prerequisites, focusing on the literary, artistic and philosophical contributions of Africans and African Americans.

**AASP 483 Gender, Sexuality and the Black Family (3)** Prerequisite: AASP100. Credit will be granted for only one of the following: AASP483 or AASP498F. Formerly AASP 498F. Examining the historical, economic, social, and scholarly construction of African American family structures. The problematization of "Black patriarchy," hetero- and homosexuality, bi-racialism, and other efforts to "normalize" African Americans to conform to Eurocentric and religious concepts of family will be critically analyzed.

**AASP 493 Feminist and Nationalist Thought in Black Communities (3)** Prerequisite: AASP100 or AASP101. Credit will be granted for only one of the following: AASP493 or AASP499W. Formerly AASP 499W. The historical and theoretical foundations of feminist and nationalist thought in Black Communities will be examined. Further, we will discover why feminist and nationalist thought has been routinely ignored or misrepresented as disparate, if not oppositional, themes in Black intellectual and political life.



## 164 Approved Courses

**AASP 498 Special Topics in Black Culture (3)** Prerequisite: AASP100 or AASP202. Repeatable to 6 credits if content differs. Advanced study of the cultural and historical antecedents of contemporary African and African American society. Emphasis on the social, political, economic and behavioral factors affecting blacks and their communities. Topics vary.

**AASP 499 Advanced Topics in Public Policy and the Black Community (3)** Prerequisite: AASP301 or permission of department. Repeatable to 6 credits if content differs. Examination of specific areas of policy development and evaluation in black and other communities. Application of advanced tools of policy analysis, especially quantitative, statistical and micro-economic analysis.

### AAST – Asian American Studies

**AAST 200 Introduction to Asian American Studies (3)** The aggregate experience of Asian Pacific Americans, from developments in the countries of origin to their contemporary issues. The histories of Asian Pacific American groups as well as culture, politics, the media, and stereotypes, viewed from an interdisciplinary perspective.

**AAST 201 Asian American History (3)** Introduction to the history of Asian Americans in the United States and the Americas and to the field of Asian American Studies, from an interdisciplinary perspective. Topics include theories of race and ethnicity; Asian migration and diaspora to the Americas; Asian American work and labor issues; gender, family, and communities; nationalism and nativism, and anti-Asian movements; Asian Americans, World War II, the Cold War, and the issues in the civil rights & post-civil rights era.

**AAST 222 Immigration and Ethnicity in America (3)** Recommended: AAST201. Also offered as HIST222. Credit will be granted for only one of the following: AAST222, AAST298A, HIST219L or HIST222. Formerly AAST 298A. The history of immigration and the development of diverse populations in the United States are examined. Topics include related political controversies, the social experiences of immigrants, ethnicity, generations, migration, inter-group relations, race and diversity in American culture.

**AAST 233 Introduction to Asian American Literature (3)** Also offered as ENGL233. Not open to students who have completed ENGL233, AAST298L. Credit will be granted for only one of the following: ENGL233, AAST233, or AAST298L. Formerly AAST 298L. A survey of Asian American literature with an emphasis on recurrent themes and historical context.

**AAST 298 Special Topics in Asian American Studies (3)** Repeatable to 6 credits if content differs. An introductory multidisciplinary and interdisciplinary educational experience to explore issues relevant to Asian American life, cultural experiences, and political, economic, and artistic development.

**AAST 378 Experiential Learning (3)** Prerequisite: AAST200; AAST201; permission of department. Field experience in professional organizations and appropriate private and governmental agencies serving the Asian-American community.

**AAST 384 Senior Seminar (3)** Prerequisites: AAST200 or AAST201; and permission of department. Career and professional opportunities. Overview of and field work in professional organizations and appropriate private and governmental agencies serving the Asian American community.

**AAST 388 Independent Research (1-3)** Prerequisites: AAST200 or AAST201; and permission of department. Repeatable to 6 credits if content differs. Directed research in Asian American Studies resulting in the completion of a thesis.

**AAST 398 Selected Topics in Asian American Studies (3)** Repeatable to 6 credits if content differs. Study of a specific theme or issue involving the Asian American experience.

**AAST 420 Asian American Women: The Social Construction of Gender (3)** Also offered as WMST420. Not open to students who have completed WMST420. Credit will be granted for only one of the following: AAST420 or WMST420. Examines the intersection of gender, race and class as it relates to Asian American women in the United States; how institutionalized cultural and social statuses of gender, race, ethnicity and social class produce and reproduce inequality in the lives of Asian American women.

**AAST 424 Sociology of Race Relations (3)** Prerequisite: Six credits in sociology or permission of department. Also offered as SOCY424. Not open to students who have completed SOCY424. Credit will be granted for only one of the following: AAST424 or SOCY424. Analysis of race-related issues, with a primary focus on American society. The historical emergence, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

**AAST 498 Advanced Topics in Asian American Studies (3)** Repeatable to 6 credits if content differs. Advanced study of the cultural and historical antecedents of contemporary Asian American society. Emphasis on the social, political, economic, and behavioral factors affecting Asian Americans and their communities.

**AAST 499 Senior Thesis (3)** Prerequisite: AAST200; AAST201; permission of department. For AAST majors only. Repeatable to 6 credits if content differs. Under the supervision of faculty, research regarding a specific topic of the Asian-American experience will be completed.

### AGNR – Agriculture and Natural Resources

**AGNR 105 Introduction to Agriculture and Natural Resources (1)** Formerly AGRI 105. Technical and human components of agriculture in a cross-disciplinary context. Agricultural origins, crop and animal domestication, agricultural geography, food and nutrition, the natural resource base and environmental concerns, agricultural policy formation, agricultural marketing and trade, sustainable agriculture, international agriculture, and the future of farming.

**AGNR 270 Technology Training Seminar (2-3)** Two hours of discussion/recitation per week. For AGNR major only or by permission of department. Also offered as BSCI279. Credit will be granted for only one of the following: AGNR270 or BSCI279. A hands-on training seminar about pedagogical applications of information technology and mastery of several technical skills. Special emphasis is placed on gainfully understanding technological issues such as copyright and intellectual property, accessibility, and usability.

**AGNR 302 Introduction to Agricultural Education (2)** Formerly AGRI 302. An overview of the job of the teacher of agriculture; examination of agricultural education programs for youth and adults.

**AGNR 311 Teaching Secondary Vocational Agriculture (3)** Formerly AGRI 311. A comprehensive course in the work of high school departments of vocational agriculture. It emphasizes particularly placement, supervised farming programs, the organization and administration of future farmer activities, and objectives and methods in all-day instruction.

**AGNR 313 Student Teaching (5)** Prerequisite: Satisfactory academic average and permission of department. Formerly AGRI 313. Full-time student teaching in an off-campus student teaching center under an approved supervising teacher of agriculture, participating experience in all aspects of the work of a teacher of agriculture.

**AGNR 315 Student Teaching (1-4)** Prerequisite: Satisfactory academic average and permission of department. Formerly AGRI 315. Full-time observation and participation in work of teacher of agriculture in off-campus student teaching center. Provides students opportunity to gain experience in the summer program of work, to participate in opening of school activities, and to gain other experience needed by teachers.

**AGNR 323 Developing Youth Programs (3)** Formerly AGRI 323. Concepts involved in planning and executing nonformal educational programs developed to meet the needs of youth. Emphasize the identification of opportunities; needs, and problems of youth in all socioeconomic levels; analysis of methods of working with youth groups and developing volunteer staff.

**AGNR 333 Agriculture's Progression toward Industrialization (3)** Junior standing. A survey reading course. Plots the global progression of agriculture toward industrialization and conflicts along the way. Reviews major trends, highlights contrasting perspectives, and reviews contemporary issues in agriculture and agricultural development.

**AGNR 386 Experiential Learning (3-6)** Prerequisite: Permission of department. Formerly AGRI 386.

**AGNR 388 Honors Thesis Research (3-6)** Prerequisite: Admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Formerly AGRI 388. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

**AGNR 400 International Agricultural Extension and Development (3)** Formerly AGRI 400. Examination of the social and ethical issues that shape extension's role in the agriculture sector of countries worldwide and that determine its contribution to international development. Review of a wide range of literature from scholars, governments, and international organizations.

**AGNR 401 Agricultural Support Systems in Developing Countries (3)** Formerly AGRI 401. Globalization and other forces for changes are examined for their impact on agriculture and the agricultural education, research, and extension knowledge support systems that promote agricultural development. The basic and often conflictive concepts relating to agriculture, agricultural development and agricultural research and extension. The main focus is on public sector agricultural and rural extension services and the diversity of contemporary institutional reforms that these services are experiencing in developing countries.

**AGNR 422 International Agriculture Science and Culture (6)** Four hours of lecture and six hours of discussion/recitation per week. Prerequisite: Permission of department. Immersion-based, intensive course of study in a foreign agricultural education setting. UM Students will study with local students in a variety of University classes and field experiences in agriculture, natural resources and environmental sciences, laboratory science, economics, education technology, etc. Students will learn customs, culture and language of the host country.

**AGNR 423 Exploring International Agriculture (3)** Prerequisite: Permission of department. Not open to students who have completed AGNR 422. Immersion-based, intensive course of study in a foreign agricultural setting. Students may expect to have university classes and field experiences in one or more agriculture and natural resource disciplines. Students will learn about the culture and customs of the host country as well as undertake at least an introductory language course.

**AGNR 450 Human Resources Development in Agriculture (3)** Three hours of lecture and one hour of discussion/recitation per week. Junior standing. Formerly AGRI 450. Human resources development in the agriculture sector highlights policy, institutional, and programmatic determinations to advance work force capability in countries worldwide. Focus on developing countries, their problems, needs, and the challenge ahead.

**AGNR 464 Rural Life in Modern Society (3)** Formerly AGRI 464. The historical and current nature of rural and agricultural areas and communities in the complex structure and culture of U.S. society. Basic structural, cultural, and functional concepts for analyses and contrasts of societies and the organizations and social systems within them.

**AGNR 467 Agricultural Knowledge and Institutional Change in Latin America (3)** Junior standing. The roles of agricultural research and extension in furthering agricultural development and trade in Latin America and the implications of contemporary reforms of these institutions. A review of basic concepts relating to agriculture and its knowledge systems, such as agricultural research, education and extension with emphasis on Latin America's cultural and institutional diversity. Students will be introduced to career possibilities in national and international organizations involved with development assistance.

**AGNR 489 Field Experience (1-4)** Prerequisite: Permission of department. Repeatable to 4 credits if content differs. Formerly AGRI 489. Credit according to time scheduled and organization of the course. A lecture series organized to study in depth a selected phase of agriculture not normally associated with one of the existing programs.

**AGNR 499 Special Problems (1-3)** Formerly AGRI 499.

### AMSC – Applied Mathematics & Scientific Computation

**AMSC 420 Mathematical Modeling (3)** Prerequisite: MATH241, MATH246, STAT400, MATH240 or MATH461; and permission of department. Also offered as MATH420. Credit will be granted for only one of the following: AMSC420, MAPL420, or MATH420. Formerly MAPL 420. The course will develop skills in mathematical modeling through practical experience. Students will work in groups on specific projects involving real-life problems that are accessible to their existing mathematical backgrounds. In addition to the development of mathematical models, emphasis will be placed on the use of computational methods to investigate these models, and effective oral and written presentation of the results.

**AMSC 452 Introduction to Dynamics and Chaos (3)** Prerequisites: MATH240 and MATH246. Also offered as MATH452. Credit will be granted for only one of the following: AMSC452, MAPL452, or MATH452. Formerly MAPL 452. An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.

**AMSC 460 Computational Methods (3)** Prerequisites: MATH240; and MATH241; and CMSC106 or CMSC114 or ENEE114. Also offered as CMSC460. Credit will be granted for only one of the following: AMSC/CMSC/MAPL460 or AMSC/CMSC/MAPL466. Formerly MAPL 460. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

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**AMSC 462 Computer Science for Scientific Computing (3)** Prerequisite: CMSC106 or CMSC131; and (AMSC460 or CMSC460); or permission of department. This course cannot be used toward the upper-level math requirement for MATH and STAT majors. Students who take CMSC311 or CMSC330 will not be given credit for this course. Also offered as CMSC462. Credit will be granted for only one of the following: AMSC462 or CMSC462. A survey of computer science for scientists and engineers. The goal is to enable the student to write efficient, well-organized programs for today's machines. Topics to be treated include computer organization, computer arithmetic, processes and operating systems, the memory hierarchy, comparison of the Fortran and C families of languages, compilers, the run time environment, memory allocation, preprocessors and portability, and documentation. Specific topics will vary from semester to semester.

**AMSC 466 Introduction to Numerical Analysis I (3)** Prerequisites: MATH240; and MATH241; and CMSC106 or CMSC114 or ENEE114. Also offered as CMSC466. Credit will be granted for only one of the following: AMSC/CMSC/MAPL460 or AMSC/CMSC/MAPL466. Formerly MAPL 466. Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.

**AMSC 477 Optimization (3)** Prerequisites: (AMSC/CMSC/MAPL460, or AMSC/CMSC/MAPL466 or AMSC/CMSC/MAPL467) with a grade of C or better. Also offered as CMSC477. Credit will be granted for only one of the following: AMSC477, CMSC477 or MAPL477. Formerly MAPL 477. Linear programming including the simplex algorithm and dual linear programs, convex sets and elements of convex programming, combinatorial optimization, integer programming.

**AMSC 498 Selected Topics in Applied Mathematics (1-3)** Repeatable to 6 credits if content differs. Formerly MAPL 498. Topics in applied mathematics of special interest to advanced undergraduate students.

### AMST – American Studies

**AMST 200 American Studies Portfolio I: Orientation (1)** Pre- and corequisite: AMST201. For AMST majors only. Orientation to the major in American Studies, emphasizing the creation of an electronic portfolio documenting written and multimedia projects, internships and service-learning experiences.

**AMST 201 Introduction to American Studies (3)** Introduction to American cultural studies—past and present—by examining the concept of “self” in American autobiographical writing and the concept of “society” in accounts of various communities.

**AMST 203 Popular Culture in America (3)** An introduction to American popular culture, its historical development, and its role as a reflection of and influence on our culture and society.

**AMST 204 Film and American Culture Studies (3)** Exploration of the American film from a historical perspective, illustrating the motion picture's role as an institutional phenomenon, as a form of communication, and as a source of cross-cultural study.

**AMST 205 Material Aspects of American Life (3)** Historical survey of American material culture. Ways of describing and interpreting accumulated material evidence (e.g., buildings, town plans) introduced by stressing relationship between artifact and culture.

**AMST 207 Contemporary American Cultures (3)** World views, values, and social systems of contemporary American cultures explored through readings on selected groups such as middle-class suburbanites, old order Amish, and urban tramps.

**AMST 211 Technology and American Culture (3)** Historical and contemporary technological innovations in American society, with special emphasis on the humanities. Varied social and cultural responses to one contemporary technological issue e.g. (environmental pollution, genetic engineering, communications technology, and psychopharmacology).

**AMST 212 Diversity in American Culture (3)** Exploration of the role of diversity in the shaping of American culture. Special emphasis will be placed on the multicultural origins of American popular and material culture, such as foodways and entertainment, and on the experience of “Americanization.”

**AMST 260 American Culture in the Information Age (3)** Credit will be granted for only one of the following: AMST260 or AMST298I. Formerly AMST 298I. Examines the ways in which content and form of public information interact with the culture, families & individuals.

**AMST 298 Selected Topics in American Studies (3)** Repeatable to 6 credits if content differs. Cultural study of a specific theme or issue involving artifacts and documents from both past and contemporary American experience.

**AMST 330 Critics of American Culture (3)** For America Studies major only or permission of instructor. Philosophies of American social purpose and promise. Readings from “classical” American thinkers, contemporary social commentators, and American studies scholars.

**AMST 388 Honors Thesis (3)** Prerequisite: Admission to AMST honors program. Permission of the department. Senior standing. Repeatable to 3 credits if content differs. Individual research, thesis and oral defense. The research project will be conducted under the supervision of a faculty member.

**AMST 398 Independent Studies (1-3)** Prerequisite: Permission of department. Repeatable to 6 credits if content differs. Provides the student with the opportunity to pursue independent, interdisciplinary research and reading in specific areas of American culture studies.

**AMST 418 Cultural Themes in America (3)** Repeatable to 6 credits if content differs. Examination of structure and development of American culture through themes such as “growing up American,” “culture and mental disorders,” “race,” “ethnicity,” “regionalism,” “landscape,” and “humor.”

**AMST 428 American Cultural Eras (3)** Repeatable to 6 credits if content differs. Investigation of a decade, period, or generation as a case study in significant social change within an American context. Case studies include “Antebellum America, 1840-1860,” “American culture in the Great Depression.”

**AMST 429 Perspectives on Popular Culture (3)** Repeatable to 6 credits if content differs. Topics in popular culture studies, including the examination of particular genres, themes, and issues.

**AMST 432 Literature and American Society (3)** Prerequisite: Prior course in AMST, SOCY, American literature, or American history. Examination of the relationship between literature and society: including literature as cultural communication and the institutional framework governing its production, distribution, conservation and evaluation.

**AMST 433 American Humor (3)** Credit will be granted for only one of the following: AMST418A or AMST433. Formerly AMST 418A. American humor from the Colonial era through the present in genres including literature, journalism, graphic arts, performance, and modern media. How humor expresses and mediates important social and cultural concerns including politics, religion, race and ethnicity, gender and topical issues.

**AMST 450 Seminar in American Studies (3)** Prerequisite: Nine hours prior coursework in American Studies, including AMST 201. Senior standing. For AMST majors only. Developments in theories and methods of American Studies scholarship, with emphasis upon interaction between the humanities and the social sciences in the process of cultural analysis and evaluation.

**AMST 498 Special Topics in American Studies (3)** Repeatable to 9 credits if content differs. Topics of special interest.

### ANSC – Animal Science

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

**ANSC 101 Principles of Animal Science (3)** Two hours of lecture and two hours of laboratory per week. A comprehensive overview of the application of biology in the care and use of animals that live in close association with humans including food animals, companion animals, lab animals, zoo animals, etc. The role of science in modern food production using animals will be emphasized. Labs will include live animals.

**ANSC 211 Anatomy of Domestic Animals (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101 and BSCI105. A systematic gross and microscopic comparative study of the anatomy of the major domestic animals. Special emphasis is placed on those systems important in animal production.

**ANSC 212 Applied Animal Physiology (3)** Prerequisite: ANSC211 or equivalent. The physiology of domesticated animals with emphasis on functions related to homeostasis, and the physiological adaptation to environmental influences.

**ANSC 214 Applied Animal Physiology Laboratory (1)** Three hours of laboratory per week. Pre- or corequisite: ANSC212. Application of physiological laboratory techniques to domestic and lab animals.

**ANSC 220 Livestock Management (3)** Prerequisite: ANSC101. Management of meat animals including beef, sheep, and swine. This course will emphasize obtaining optimal efficiency of production through the integration of leading edge breeding, feeding, management, and marketing practices.

**ANSC 232 Horse Management (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101. Credit will be granted for only one of the following: ANSC232 or ANSC332. Formerly ANSC 332. An introductory course on the care, management, and use of horses. Major topics include the industry, breeds, conformation, feeding, health, reproduction, facilities and business.

**ANSC 233 Equine Behavior (2)** Prerequisite: ANSC232. Credit will be granted for only one of the following: ANSC489B or ANSC233. Formerly ANSC 489B. Both normal and anomalous behavior of horses will be covered. Emphasis will be given to techniques based on knowledge of behavior that are known to be safe and effective in handling horses.

**ANSC 234 Equine Nutrition (2)** Prerequisite: ANSC232. Not open to students who have completed ANSC489N. Credit will be granted for only one of the following: ANSC489N or ANSC234. Formerly ANSC 489N. Fundamentals of equine nutrition including feed ingredient selection, ration-balancing, and nutrition of various classes of horses.

**ANSC 240 Dairy Cattle Management (2)** Prerequisite: ANSC220. All aspects of dairy production, including nutrition, reproduction, mastitis control, milking management, farmstead facilities, financial management and forage production.

**ANSC 241 Dairy Cattle Management Practicum (1)** Three hours of laboratory per week. Prerequisite: ANSC240. Formerly ANSC 242. Practicum to parallel ANSC 240. Field trips required.

**ANSC 244 Dairy Cattle Type Appraisal (1)** Two laboratory periods. Prerequisite: Permission of department. Laboratory. Analysis of dairy cattle type with emphasis on the comparative judging of dairy cattle.

**ANSC 252 Introduction to the Diseases of Wildlife (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: BSCI105 or equivalent or permission of department. The principal diseases of North American wildlife will be briefly considered. For each disease, specific attention will be given to the following: signs evidenced by the affected animal or bird, causative agent, means of transmission and effects of the disease on the population of the species involved.

**ANSC 255 Introduction to Aquaculture (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC101 or introductory biology course. Introduces the art and science of rearing aquatic animals and the essential principles of aquaculture. Students receive hands-on training in the methods required for successful husbandry and management of aquatic animals in their water environment.

**ANSC 262 Commercial Poultry Management (3)** Prerequisite: ANSC101. Theory and science of rearing poultry and marketing poultry meat and eggs in the commercial sector. Includes current issues, organization of the industry, as well as fundamental biology of the domestic chicken. Field trips to commercial poultry operations are required.

**ANSC 305 Companion Animal Care (3)** Prerequisite: BSCI105. Care and management of the companion small animals. Species covered include the cat, dog, rodents, lagomorphs, reptiles, amphibians, birds and others as class interest and schedule dictate. Basic description, evolutionary development, breeding, nutritional and environmental requirements, and public health aspects will be presented for each species.

**ANSC 314 Comparative Animal Nutrition (3)** Prerequisites: ANSC101 and (CHEM104 or CHEM231). The fundamental role and implications of dietary preference, gastrointestinal physiology and nutrients in animal nutrition. Biochemical roles of nutrients in metabolism, digestion, absorption and assimilation as it relates to various life processes.

**ANSC 315 Applied Animal Nutrition (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC314. Elements of nutrition, source characteristics and adaptability of various feedstuffs to several classes of livestock. A study of the composition of feeds, nutrient requirements and computerized formulation of economic diets and rations for livestock.

**ANSC 327 Molecular and Quantitative Animal Genetics (3)** Prerequisites: ANSC101, BSCI105, and CHEM131. Classical, molecular, and population genetics with specific emphasis on animal systems will be covered. Also, disseminate information on molecular approaches for manipulating genetics at the whole animal level (transgenic and cloning). Other model organisms will be discussed to provide a conceptual framework.

**ANSC 330 Equine Science (3)** Prerequisite: ANSC232 or permission of instructor. Recommended: ANSC211 and ANSC212. Credit will be granted for only one of the following: ANSC230 or ANSC330. Formerly ANSC 230. Scientific principles of horse behavior, anatomy, physiology, locomotion, nutrition, reproduction, growth, health and disease as applied to horses are emphasized.

**ANSC 340 Health Management of Animal Populations (3)** Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: ANSC212. Recommended: BSCI223. Credit will be granted for only one of the following: ANSC340 or ANSC412. Formerly ANSC 412. A study of common and emerging animal diseases and their prevention and control. The main focus will be on livestock and poultry diseases. However, zoonotic, wildlife, and laboratory animal diseases will also be discussed along with risk assessment, bioterrorism counter-measures, and animal welfare, especially as these topics interface or impact animals used in food production.

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**ANSC 386 Experiential Learning (3-6)** Prerequisite: Permission of department. Junior standing.

**ANSC 388 Honors Thesis Research (3-6)** Prerequisite: Admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

**ANSC 397 Seminar - Careers (1)** Prerequisite: Permission of department. Career and professional opportunities. Overview of professional organizations and appropriate private and governmental agencies. Preparation and presentation of animal science topics.

**ANSC 398 Seminar - Research (1)** Prerequisite: ANSC101. Repeatable to 2 credits if content differs. Presentation and discussion of current literature and research work in animal science.

**ANSC 399 Special Problems in Animal Science (1-2)** Prerequisite: ANSC101 and permission of department. Junior standing. Repeatable to 6 credits if content differs. Work assignments are designed to be proportional to the amount of credit. Students are expected to develop an abstract, fact sheet, manuscript, oral presentation, poster, webpage, journal-log, or other scholarly product associated with their study and/or project.

**ANSC 413 Laboratory Animal Management (3)** Prerequisite: ANSC101. A comprehensive course in care and management of laboratory animals. Emphasis will be placed on physiology, anatomy and special uses for the different species. Disease prevention and regulations for maintaining animal colonies will be covered. Field trips will be required.

**ANSC 420 Critical Thinking in Animal Science (3)** Two hours of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Recommended: AREC250, AREC306. Employ methods to systematically solve selected problems that typically arise on farms or allied businesses related to animal enterprises.

**ANSC 435 Experimental Embryology (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC212. Recommended: Reproductive Physiology. Credit will be granted for only one of the following: ANSC435 or ANSC489M. Formerly ANSC 489M. Experimental approaches to mammalian embryology with emphasis on domestic livestock systems as applied to research and production systems. Lab will include hands-on experiments and demos of in vitro embryo production, embryo splitting, cell injection and nuclear transfer.

**ANSC 437 Animal Biotechnology (2)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: ANSC327 or equivalent. Key concepts and current issues in animal biotechnology are covered. Current techniques and applications systems as well as social, ethical, and regulatory issues associated with biotechnology will be discussed.

**ANSC 443 Physiology and Biochemistry of Lactation (3)** Prerequisites: ANSC212 and BCHM463 or equivalent. The physiology and biochemistry of milk production in domestic animals, particularly cattle. Mammary gland development and maintenance from the embryo to the fully developed lactating gland. Abnormalities of the mammary gland.

**ANSC 444 Domestic Animal Endocrinology (3)** Prerequisite: ANSC212 or permission of instructor. Not open to students who have completed ANSC489I or ANSC644. Credit will be granted for only one of the following: ANSC489I, ANSC444, or ANSC644. Formerly ANSC 489I. Current developments in endocrinology as it relates to animals used in the production of food and other products important to the well being of humans will be covered.

**ANSC 446 Physiology of Mammalian Reproduction (3)** Prerequisite: BSCI440 or ANSC212. Anatomy and physiology of reproductive processes in domesticated and wild mammals.

**ANSC 447 Physiology of Mammalian Reproduction Laboratory (1)** Three hours of laboratory per week. Pre- or corequisite: ANSC446. Gross and micro-anatomy, artificial insemination, estrous cycle synchronization and invitro-fertilization procedures and analytical techniques useful in animal management and reproduction.

**ANSC 452 Avian Physiology (3)** Two, two-hour lecture/laboratory/demonstration periods per week. One hour of lecture and two hours of laboratory per week. Prerequisite: ANSC212. 60 semester hours. The digestive, excretory, respiratory, circulatory, immune, skeletal muscle, endocrine and nervous systems of avian species will be examined.

**ANSC 453 Animal Welfare and Bioethics (3)** Prerequisite: ANSC101 or BSCI106 or permission of instructor. Junior standing. Ethical concerns related to the use of animals in modern society. Historical and philosophical overview of animal welfare and bioethics. Applied ethical discussions on human/animal interrelationships, physical and genetic manipulation, and other current issues associated with the treatment of animals used in food production, research, zoos, and as pets.

**ANSC 455 Applied Animal Behavior (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: ANSC101 or BSCI106; and BSCI222. Principles of animal behavior applied to production systems in animal agriculture.

**ANSC 489 Current Topics in Animal Science (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Examination of current developments in the animal sciences.

**ANSC 497 Animal Biotechnology Recombinant DNA Laboratory (3)** One hour of lecture and five hours of laboratory per week. Prerequisite: ANSC327 or equivalent. Recommended: ANSC435 and ANSC437. An advanced course offering hands-on experience in performing recombinant DNA experiments. Current molecular biology techniques used for cloning genes, analyzing the gene products, and modifying the genes of animals will be performed. Techniques include isolation of DNA, use of restriction enzymes; cloning procedures, PCR analysis, and Southern hybridizations. Lecture material focuses on interpretation of results generated in the laboratory.

### ANTH – Anthropology

**ANTH 220 Introduction to Biological Anthropology (4)** Three hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: ANTH101 or ANTH220. Formerly ANTH 101. Human biological evolution, including the biology of contemporary human groups, non-human primate social behavior, and the fossil, biochemical, and molecular evidence for human evolution. Includes a laboratory study of human population genetics, biochemical variation, and anatomical diversity in modern and fossil human and non-human primate groups.

**ANTH 240 Introduction to Archaeology (3)** Credit will be granted for only one of the following: ANTH240 or ANTH241. Formerly ANTH 241. Exploration of the variety of past human societies and cultures through archaeology, from the emergence of anatomically modern humans to the more recent historical past.

**ANTH 260 Introduction to Sociocultural Anthropology and Linguistics (3)** Credit will be granted for only one of the following: ANTH102 or ANTH260. Formerly ANTH 102. Culture and social relationships in a wide variety of settings from small-scale to complex societies. An overview of how anthropology analyzes human behavior. Particular attention to the relationship between language and culture.

**ANTH 262 Culture and Environment (3)** Prerequisite: ANTH 260 or permission of department. Credit will be granted for only one of the following: ANTH 221 or ANTH 262. Formerly ANTH 221. Theory and method in cultural ecology and the formulation of a critical perspective on the explanation of the concept of adaptation. Includes the ecological understanding of gender differences and considers conflicting natural resource management strategies and environmental degradation.

**ANTH 298 Special Topics in Anthropology (3)** Repeatable to 6 credits if content differs. Anthropological perspectives on selected topics of broad general interest.

**ANTH 320 Method and Theory in Biological Anthropology (3)** Prerequisite: ANTH220 or permission of department. Not open to students who have completed ANTH425 or ANTH625. Credit will be granted for only one of the following: ANTH320, ANTH425, or ANTH625. Introduction to major contributions to applied biological anthropology. Topics include reproduction and fertility, nutrition, pollution, physical fitness, and degenerative metabolic disease.

**ANTH 340 Method and Theory in Archaeology (3)** Prerequisite: ANTH240. Theory, method, and practice which guides modern anthropological archaeology. Includes research design and execution (from survey through excavation and interpretation), the reconstruction of aspects of past cultures, and the understanding of cultural change and meaning.

**ANTH 358 Undergraduate Teaching Assistant (1-3)** Prerequisite: ANTH220, ANTH240, or ANTH260 for ANTH 358A/B/C respectively. Junior standing. For ANTH majors only. Repeatable to 06 credits if content differs. Individual instruction course: contact department or instructor to obtain section and index numbers.

**ANTH 360 Method and Theory in Sociocultural Anthropology (3)** Prerequisite: ANTH260. Theoretical approaches and research methods in sociocultural anthropology. Emphasis on current debates, new directions, and their historical antecedents.

**ANTH 361 Cultures of Native North America (3)** Credit will be granted for only one of the following: ANTH361 or ANTH368N. Formerly ANTH 368N. Examination of the cultures native to North America, including the land areas of Canada, the United States of America, and the major portion of the Republic of Mexico.

**ANTH 362 Diversity in Complex Societies (3)** Prerequisite: ANTH260 or permission of department. Methodological and theoretical approaches in anthropology to complex society through selected case study material that highlights the relationship between gender, class and cultural diversity as it shapes modern social life. Cross-cultural comparison and the different perspectives of minority and feminist scholars will also be stressed.

**ANTH 363 Native Cultures of Mesoamerica (3)** Credit will be granted for only one of the following: ANTH363 or ANTH368M. Formerly ANTH 368M. Examination of the various indigenous people of the Western Hemisphere with a focus on the influence and effect of European contact on these cultural systems. Discussion of the cultural and social contrasts and complexities shared by the people in this region on local, regional, and national levels.

**ANTH 364 The Anthropology of Religion (3)** Prerequisite: ANTH260. Credit will be granted for only one of the following: ANTH364 or ANTH434. Formerly ANTH 434. Comparative study of religion in social, cultural, political, and economic context. Combines the history of schools of interpretation with a survey of theoretical alternatives and a focus on selected case studies.

**ANTH 365 Cultures of Native South America (3)** Not open to students who have completed ANTH368S. Credit will be granted for only one of the following: ANTH365 or ANTH368S. Formerly ANTH 368S. An examination of the South American Native people and their culture, past and present. Discussion of the invasion and political domination of South American Native people by Europeans and the remnant cultures subsequent representation by outsiders.

**ANTH 366 Film Images of Native Americans (3)** Formerly ANTH 368F. An examination of how indigenous people of the New World have been presented to film audiences of the world. Development of an ethnographic understanding of Native Americans via the use of videos, films, and classroom discussion.

**ANTH 368 Regional Ethnography (3)** Prerequisite: ANTH260 or permission of department. Repeatable to 6 credits if content differs. Peoples and cultures of a particular region of the world, on the basis of ethnographies, archaeological evidence, and relevant works by social historians and political economists. The regional focus and thematic emphasis will vary by semester.

**ANTH 380 Culture and Discourse (3)** Prerequisite: ANTH260 or equivalent or permission of department. Recommended: LING200 or equivalent. Credit will be granted for only one of the following: ANTH380 or ANTH371. Formerly ANTH 371. Contemporary discourse analysis and pragmatics applied to ethnographic research problems with particular attention to roots in recent linguistic anthropological work in ethnographic semantics and ethnography of speaking.

**ANTH 386 Experiential Learning (1-6)** Prerequisite: permission of department. Recommended: completion of advanced courses in relevant subfield of anthropology. Junior standing. For ANTH majors only.

**ANTH 398 Independent Study (1-3)** Prerequisite: Permission of department. Repeatable to 6 credits if content differs. Independent interdisciplinary research and reading in specific areas of anthropology.

**ANTH 410 Culture, Health and Community Development (3)** Junior standing. Also offered as ANTH610. Credit will be granted for only one of the following: ANTH410 or ANTH610. Introduction to the relationships between culture, health practices, and community development viability. Focus on ethnographic research and stakeholder analysis.

**ANTH 422 Human-Plant-(Human & Bioactive Plant)interaction (3)** Prerequisites: ANTH220 and ANTH320 or permission of department. Also offered as ANTH622. Not open to students who have completed ANTH428I or ANTH689I. Credit will be granted for only one of the following: ANTH422 or ANTH622. Formerly ANTH 428I. This seminar course will discuss the evolutionary, historical, cultural, and ecological aspects of coevolution, with respect to humans and their interactions with specific bioactive plants. Case studies of human- plant-(pathogen) interactions will be discussed as well as an inclusive survey of anthropologically important phytochemicals. The seminar incorporates human-plant-(pathogen) interactions into models of human evolution and ecology.

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**ANTH 423 Human Biodiversity (3)** Prerequisites: ANTH 220 and ANTH 320 or permission of department. Also offered as ANTH623. Not open to students who have completed ANTH428X or ANTH623. Credit will be granted for only one of the following: ANTH423 or ANTH623. Formerly ANTH 428X. This course will discuss modern human origins and contemporary human variability, the nature and levels of human diversity; how natural selection modulates human differences and similarities; early studies of human variation and the concept of human biological race. The course emphasizes the genetic and non-genetic bases of human behavioral variation; the role of gender and human biodiversity; nDNA variation, ethnicity, and disease causation; morphometric and biochemical variation; and the re-conceptualization of human biodiversity.

**ANTH 428 Special Topics in Bioanthropology (3)** Prerequisite: Permission of department. Repeatable to 6 credits if content differs. Advanced research courses in biological anthropology on changing topics that correspond to new theoretical interests, faculty research interests, or the specialties of visiting scholars. Prerequisites or background knowledge vary with the topic; check with the department for requirements.

**ANTH 440 Historical Archaeology (3)** Prerequisite: ANTH240. Also offered as ANTH640. Credit will be granted for only one of the following: ANTH440 or ANTH640. The expansion of European culture through colonization of outposts and countries around the world after 1450 is explored through material remains and artifacts from areas that may include Africa, India, South Africa, Australia, and the Western Hemisphere.

**ANTH 448 Special Topics in Archaeology (3)** Prerequisite: ANTH240. Repeatable to 6 credits if content differs. Advanced topics in archaeological research, corresponding to new theoretical developments, faculty research interests, or specialties of visiting scholars. Prerequisites may vary with course topic; check with the department for requirements.

**ANTH 450 Resource Management and Cultural Process (3)** Junior standing. Also offered as ANTH650. Credit will be granted for only one of the following: ANTH450 or ANTH650. Introduction to anthropological contributions to resource management, to include natural resources, agricultural development, heritage management, urban and regional resource planning, and tourism development. Focus on ecological and cultural approaches.

**ANTH 454 Anthropology of Travel and Tourism (3)** Also offered as ANTH654. Not open to students who have completed ANTH468U. Credit will be granted for only one of the following: ANTH454 or ANTH654. Formerly ANTH 468U. Review of recent anthropological contributions to the study of tourism and tourism development. Topics include the political economy of tourism, gender in tourism, the built environment, ecotourism, and sustainable tourism development.

**ANTH 460 Interpretive Anthropology (3)** Prerequisite: ANTH260 or permission of department. Anthropological approaches which seek to explain human behavior in terms of meaning and their relationships to other aspects of social life.

**ANTH 464 Culture and Sustainable Development (3)** Prerequisite: ANTH262 or equivalent. Also offered as ANTH688V. Credit will be granted for only one of the following: ANTH464 or ANTH688V. Explores anthropological approaches to economic development, particularly the new sub-field of sustainable development. Examines the local-level social, political and economic consequences of development and the potential for grass roots strategies to manage resources.

**ANTH 468 Special Topics in Cultural Anthropology (3)** Prerequisite: ANTH360 or permission of department. Repeatable to 6 credits if content differs. Advanced courses in varying specialty areas of cultural anthropology that respond to new theoretical developments, faculty research interests, or specialties of visiting scholars.

**ANTH 470 History and Philosophy of Anthropological Inquiry (3)** Prerequisite: ANTH220 or ANTH240 or ANTH260. Recommended: ANTH320 or ANTH340 or ANTH360 or ANTH380. Credit will be granted for only one of the following: ANTH470 or ANTH397. Formerly ANTH 397. Important philosophical and historical aspects of anthropological theorizing. Attention will be given on the Ontological and Epistemological (the latter including Methodological) assumptions of the major camps and paradigms in anthropology over the past one hundred or so years, especially the last three decades. A focus on developments in cultural anthropology, while addressing the other subfields of anthropology.

**ANTH 476 Senior Research (3-4)** For ANTH majors only. Credit will be granted for only one of the following: ANTH476 or ANTH486. Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of a senior thesis in anthropology.

**ANTH 477 Senior Thesis (3-4)** Prerequisite: ANTH476; permission of department. For ANTH majors only. Credit will be granted for only one of the following: ANTH477 or ANTH487. Capstone course in which students write a senior thesis on independent research into a current problem in anthropology. The thesis is defined before a committee of faculty.

**ANTH 478 Special Topics in Linguistics (3)** Prerequisite: ANTH380 or permission of department. Recommended: LING200 or equivalent. Repeatable to 6 credits if content differs. Advanced courses in specialty areas that respond to new theoretical developments and faculty research interests in linguistics.

**ANTH 486 Honors Research (3-4)** Prerequisites: permission of department; admission to University Honors Program or Anthropology Honors Program. For ANTH majors only. Credit will be granted for only one of the following: ANTH486 or ANTH476. Capstone course in which students pursue independent research into a current problem in anthropology, selected with assistance of a committee of faculty. Research leads to the writing of an honors thesis in anthropology.

**ANTH 487 Honors Thesis (3-4)** Prerequisites: ANTH486; permission of department; admission to University Honors Program or Anthropology Honors Program. For ANTH majors only. Credit will be granted for only one of the following: ANTH487 or ANTH477. Capstone course in which students write a thesis on the results of independent research into a current problem in anthropology.

**ANTH 496 Field Methods in Archaeology (6)** Formerly ANTH 499. Field training in the techniques of archaeological survey and excavation.

**ANTH 498 Ethnographic Fieldwork (3-8)** Prerequisite: Permission of department. Repeatable to 8 credits if content differs. Field training in the collection, recording and interpretation of ethnographic data.

**ANTH 499 Fieldwork in Biological Anthropology (3-8)** Prerequisite: permission of department. Repeatable to 8 credits if content differs. Field training in techniques of human biology, primatology, or paleoanthropology.

### AOSC – Atmospheric and Oceanic Science

**AOSC 123 Causes and Implications of Global Change (3)** Also offered as GEOG123, and GEOL123. Credit will be granted for only one of the following: AOSC123, GEOG123, GEOL123, or METO123. Formerly METO 123. This course offers a unique experience in integrating physical, chemical, geological and biological sciences with geographical, economic, sociological and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming and impacts on biology, agriculture and human behavior. Study of the natural, long-term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological and human behavioral systems interact, and the repercussions which may follow from human endeavors. The manner in which to approach decision and policy making related to issues of global change.

**AOSC 200 Weather and Climate (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: MATH110 or MATH115. Recommended as a corequisite: AOSC201/METO201. Formerly METO 200. Broad survey of the state of knowledge and problems of atmospheric science. Origin and structure of the atmosphere, meteorological observations, weather maps, forecasting, satellites, energetics, wind, general circulation, storms, severe weather, climate change, air pollution.

**AOSC 201 Weather and Climate Laboratory (1)** Two hours of laboratory per week. Corequisite: AOSC200/METO200. Formerly METO 201. Laboratory exercises to supplement METO 200, including weather observations, weather map analysis, use of the Internet, forecasting practice and climate modeling.

**AOSC 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor and student's internship sponsor. Junior standing. Formerly METO 386.

**AOSC 400 The Atmosphere (3)** Prerequisites: MATH141, PHYS161, PHYS171 or permission of department. Formerly METO 400. The atmosphere and its weather and climate systems. Composition of the atmosphere, energy sources and sinks, winds, storms and global circulation. The application of basic classical physics, chemistry and mathematics to the study of the atmosphere.

**AOSC 401 Global Environment (3)** Prerequisite: AOSC400/METO400. Formerly METO 401. The global weather and climate system; the natural variability of the atmosphere-ocean-biosphere. Potential human effects: greenhouse effects, deforestation, acid rain, ozone depletion, nuclear winter. Social, political and economic effects of changes in global environment. Policy options.

**AOSC 431 Meteorology for Scientists and Engineers I (3)** Prerequisites: MATH240 or 461; PHYS270 and PHYS271 (Formerly: 263); CHEM103. Recommended: MATH246. The general character of the atmosphere and its weather and climate systems, phenomena and distributions of variables (winds, temperature, pressure and moisture). The formal framework of the science; the application of basic classical physics, chemistry, mathematics and computational sciences to the atmosphere.

**AOSC 432 Meteorology for Scientists and Engineers II (3)** Prerequisite: AOSC431/METO431. Corequisite: MATH246. 3 semester hours. Formerly METO 432. The general character of the atmosphere and its weather and climate systems, phenomena and distributions of variables (winds, temperature, pressure and moisture). The formal framework of the science; the application of basic classical physics, chemistry, mathematics and computational sciences to the atmosphere.

**AOSC 434 Air Pollution (3)** Prerequisites: (CHEM113 and MATH241) or permission of department. Formerly METO 434. Production, transformation, transport and removal of air pollutants. The problems of photochemical smog, the greenhouse effect, stratospheric ozone, acid rain and visibility. Analytical techniques for gases and particles.

**AOSC 499 Special Problems in Atmospheric Science (1-3)** Prerequisite: permission of department. Repeatable to 6 credits. Formerly METO 499. Research or special study in the field of meteorology and the atmospheric and oceanic sciences.

### ARAB – Arabic

**ARAB 101 Elementary Arabic I (3)** Introduction to modern standard Arabic in both its spoken and written form. Equal emphasis on all four skill areas: speaking, listening, reading, and writing.

**ARAB 102 Elementary Arabic II (3)** Prerequisite: ARAB101 or equivalent. Continuation of ARAB101.

**ARAB 104 Elementary Modern Standard Arabic I-II (6)** Not open to fluent/native speakers of Arabic. An intensive course focusing on developing functional proficiency in the standard Arabic language, both written and formal spoken. Begins with script and phonology, and develops into a limited range of situation-based texts and topics that build vocabulary, grammar, general communicative competence and cultural awareness.

**ARAB 105 Elementary Modern Standard Arabic III-IV (6)** Not open to fluent/native speakers of Arabic. Prerequisite: ARAB104. Continuation of ARAB104, developing further linguistic proficiency in Standard Arabic, both written and formal spoken. Covers an extended range of situation-based texts and topics that build vocabulary, grammar, general communicative competence and cultural awareness.

**ARAB 106 Elementary Egyptian Colloquial Arabic I (3)** Not open to fluent/native speakers of Arabic. Basic knowledge of Arabic script required. Introduction to the widely spread spoken variety of Egyptian Arabic, covering the basic range of communicative and cultural situations where Modern Standard Arabic is not used. {Can be taken concurrently with an MSA course}. Emphasis is on developing the learners' listening and speaking skills in Egyptian Arabic, since colloquial Arabic dialects are mainly used in speech.

**ARAB 107 Elementary Egyptian Colloquial Arabic II (3)** Not open to fluent/native speakers of Arabic. Prerequisite: ARAB106. Continuation of ARAB106, covering a wider range of basic vocabulary, grammar forms, communicative and cultural situations using the widely spread spoken variety of Egyptian Arabic. Emphasis on developing learners' listening and speaking skills in Egyptian Arabic, since colloquial dialects in the Arab world are mainly used in speech.

**ARAB 110 Elementary Levantine Colloquial Arabic I (3)** Not open to fluent/native speakers of Arabic. Basic knowledge of Arabic script required. Introduction to Levantine Arabic, the variety of Arabic spoken in Lebanon, covering the basic range of communicative and cultural situations where Modern Arabic is not used. {Can be taken concurrently with a MSA course.} Emphasis on developing the learners' listening and speaking skills in Levantine Arabic.

**ARAB 111 Elementary Levantine Colloquial Arabic II (3)** Not open to fluent/native speakers of Arabic. Prerequisite: ARAB110. Continuation of ARAB110, covering a wider range of basic vocabulary, grammar forms, communicative and cultural situations using the widely spread spoken variety of Levantine Arabic. Emphasis on developing learners' listening and speaking skills in Levantine Arabic. Will engage students in pedagogical tasks, emulate real life tasks such as information gap and negotiation.

**ARAB 201 Intermediate Arabic I (3)** Prerequisite: ARAB102 or equivalent. Intermediate modern standard Arabic I in both its spoken and written forms. Course will continue to develop all four skills of language acquisition: listening, speaking, reading, and writing.

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**ARAB 202 Intermediate Arabic II (3)** Prerequisite: ARAB201 or equivalent. Continuation of ARAB201.

**ARAB 204 Intermediate Modern Standard Arabic I (6)** Prerequisite: ARAB105. Cover topics related to contemporary Arabic society, literature and culture in standard written and formal spoken Arabic. Acquisition of more complex grammatical structures, expanding vocabulary, and reading, to develop a better understanding of the formal aspects of using MSA.

**ARAB 205 Intermediate Modern Standard Arabic II (6)** Prerequisite: ARAB204. Continuation of ARAB204, with exposure to a wide range of Arabic texts from different domains. Focus on vocabulary, more complex grammatical forms, and a better understanding of the formal aspects of using MSA as well as the cultural aspects of using the language.

**ARAB 221 The Arab World Today through Readings in Translation (3)** An introduction to the contemporary Arabic world through literature. Includes discussions of historical background, political thought and society. (In English)

**ARAB 282 The Arab-Israeli Conflict through Readings in Translation (3)** Literary works by both Arab and Jewish authors depicting the impact of the conflict on society and individuals. In English.

**ARAB 301 Advanced Modern Standard Arabic (3)** Prerequisite: ARAB202 or permission of department. Spoken and written forms in modern standard Arabic. Advanced forms, including reading short stories and newspaper articles.

**ARAB 306 Intermediate Egyptian Colloquial Arabic I (3)** Prerequisite: ARAB107. Covering the spoken variety of Egypt in an extended range of communicative contexts where Egyptian Colloquial and Modern Standard Arabic merge. By course end, the students speak in Egyptian Arabic in situations and topics that require reasonable knowledge of the culture.

**ARAB 307 Intermediate Egyptian Colloquial Arabic II (3)** Prerequisite: ARAB306. Continuation of ARAB306, focusing on enhancing learners' speaking and listening skills in Egyptian Arabic, enriching their vocabulary, introducing them to more complex grammatical forms and structures, and providing practice in a broad range of communicative and cultural contexts.

### ARCH – Architecture

**ARCH 101 Foundations in Architecture (1)** One hour of lecture and one hour of discussion/recitation per week. Prerequisite: UNIV100 or permission of department. Restricted to students with less than 60 credits. Freshman standing. To pursue any field of knowledge one must first begin with the basics. By learning the “language” of architecture one can explore the foundations of the architectural profession through interactive and experiential learning.

**ARCH 150 Discovering Architecture: A Career Studio (3)** Five hours of lecture, 25 hours of laboratory, and five hours of discussion/recitation per week. Prerequisite: permission of department. Introduction to careers in architecture. A Young Scholars Program course, offered during the summer only.

**ARCH 170 Introduction to the Built Environment (3)** Introduction of conceptual, perceptual, behavioral, and technical aspects of the built environment, and methods of analysis, problem- solving, and implementation.

**ARCH 220 History of Architecture I (3)** Survey of world architectural history to 1400.

**ARCH 221 History of Architecture II (3)** Prerequisite: ARCH220 or permission of department. Survey of world architectural history from 1400 to the present.

**ARCH 223 History of Non-Western Architecture (3)** Survey of non-western architectural history, including prehistoric and vernacular; ancient civilizations and the Indus valley; the Islamic world; Hindu and Buddhist traditions of Asia; and pre-European Africa and the Americas.

**ARCH 224 The Ancient Roman City: Pompeii and Beyond (3)** Not open to students who have completed HONR208S. Credit will be granted for only one of the following: ARCH224 or HONR208S. Study of daily life in the ancient Roman world seen through the architecture of Pompeii and neighboring cities.

**ARCH 225 History of World Architecture I (3)** Sophomore standing. Survey of architectural history from prehistory through the year 1000 CE.

**ARCH 226 History of World Architecture II (3)** Sophomore standing. Survey of architectural history from 1000 to 1800.

**ARCH 227 History of World Architecture III (3)** Sophomore standing. Survey of architectural history from 1800 to present.

**ARCH 242 Basic Architectural Drawing (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ARCH170 or permission of department. Freshman standing. For ARCH majors only. The study of drawing as a learned skill with emphasis on observation, documentation, analysis, and synthesis. This introductory course immerses students in the conventions of architectural drawing (orthographics, isometrics, axonometrics, and linear perspective) primarily through freehand drawing.

**ARCH 343 Intermediate Architectural Drawing (3)** Studio, four hours per week. Six hours of laboratory per week. Prerequisite: ARCH242 or permission of department. For ARCH majors only. Development of media technique (including color pencil, pastel, graphite, ink, and watercolor) as vehicles for investigating color, composition, and abstraction. Exploration of historical and contemporary issues of representation in architectural visual communication.

**ARCH 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by faculty sponsor, and student’s internship sponsor. Junior standing.

**ARCH 400 Architecture Studio I (6)** Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH majors only. Introduction to architectural design with particular emphasis on conventions and principles of architecture, visual and verbal communication skills, formal analysis, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses.

**ARCH 401 Architecture Studio II (6)** Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH400 with a grade of C or better. For ARCH majors only. Continuation of ARCH 400 with introduction to building typology, urban and contextual issues, design of the vertical surface, and architectural interiors.

**ARCH 402 Architecture Studio III (6)** Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH401 with a grade of C or better. For ARCH majors only. Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect’s obligations to urban context are explored in many dimensions including historical, typological, and physical.

**ARCH 403 Architecture Studio IV (6)** Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH402 with a grade of C or better. For ARCH majors only. Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect’s obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.

**ARCH 408 Intermediate Architectural Drawing (1-6)** Prerequisite: ARCH403 or equivalent and permission of department. Repeatable to 6 credits if content differs. Topical problems in architecture and urban design.

**ARCH 410 Architecture Technology I (4)** Prerequisites: MATH140 or MATH220; PHYS121 and (one of the following: BSCI205, GEOG140, GEOL120, AOSC123/GEOG123 GEOL123/MET0123). Corequisite: ARCH400. For ARCH majors only. First course in a four course sequence which develops the knowledge and skills of architectural technology. Addresses climate, human responses to climate, available materials, topography and impact on culture. Principles of assembly, basic structural principles and philosophies of construction.

**ARCH 411 Technology II (4)** Prerequisite: ARCH410. Corequisite: ARCH401. For ARCH majors only. Second course in a four course sequence. Building construction processes and terminology; use and performance characteristics of primary building materials; principles of structural behavior related to the building systems; equilibrium and stability, stiffness and strength, types of stress, distribution of force and stress, resolution of forces, reactions, bending moments, shear, deflection, buckling.

**ARCH 412 Architecture Technology III (4)** Prerequisite: ARCH411 with a grade of C or better. Corequisite: ARCH402. For ARCH majors only. Third course in a four-course sequence. Design of steel, timber, and reinforced concrete elements and subsystems; analysis of architectural building systems. Introduction to design for both natural and man-made hazards.

**ARCH 413 Architecture Technology IV (4)** Prerequisite: ARCH412. Corequisite: ARCH403. For ARCH majors only. Final course in a four course sequence. Theory, quantification, and architectural design applications for HVAC, water systems, fire protection electrical systems, illumination, signal equipment, and transportation systems.

**ARCH 418 Selected Topics in Architectural Technology (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

**ARCH 419 Independent Studies in Architectural Technology (1-4)** Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

**ARCH 420 History of American Architecture (3)** Prerequisite: ARCH221 or permission of department. American architecture from the late 17th to the 21st century.

**ARCH 422 History of Greek Architecture (3)** Prerequisite: ARCH221 or permission of department. Survey of Greek architecture from 750-100 B.C.

**ARCH 423 History of Roman Architecture (3)** Prerequisite: ARCH221 or permission of department. Survey of Roman architecture from 500 B.C. To A.D. 325.

**ARCH 426 Fundamentals of Architecture (3)** Prerequisite: admission to 3 1/2 year M. ARCH program. For ARCH majors only. Thematic introduction of a variety of skills, issues, and ways of thinking that bear directly on the design and understanding of the built world.

**ARCH 427 Theories of Architecture (3)** Prerequisite: ARCH426 or permission of department. For ARCH majors only. Selected historical and modern theories of architectural design.

**ARCH 428 Selected Topics in Architectural History (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Special topics in the history of architecture.

**ARCH 429 Independent Studies in Architectural History (1-4)** Repeatable to 6 credits. Proposed work must have faculty sponsor and receive approval of the Curriculum Committee.

**ARCH 433 History of Renaissance Architecture (3)** Prerequisite: ARCH221 or permission of department. Renaissance architectural principles and trends in the 15th and 16th centuries and their modifications in the Baroque period.

**ARCH 434 History of Modern Architecture (3)** Prerequisite: ARCH221 or permission of department. Architectural trends and principles from 1750 to the present, with emphasis on developments since the mid-19th century.

**ARCH 435 History of Contemporary Architecture (3)** Prerequisite: ARCH221 or permission of department. Architectural history from World War II to the present.

**ARCH 436 History of Islamic Architecture (3)** Prerequisite: ARCH221 or permission of department. Survey of Islamic architecture from the seventh through the 18th-century.

**ARCH 437 History of Pre-Columbian Architecture (3)** Prerequisite: ARCH221 or permission of department. History of architecture of the western hemisphere from the Pre-Classical period through the Spanish conquest.

**ARCH 442 Studies in the Vertical Surface (3)** Prerequisite: ARCH401 or permission of department. Theories of analysis and design related to vertical surface. Exercises include documentation, analysis, and design of facades.

**ARCH 443 Visual Communication For Architects (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: Admission to the 3 1/2 year M. ARCH program. Corequisite: ARCH400. For ARCH majors only. Investigation of the relationship between drawing from life and architectural drawing, the conventions of architectural drawing and the role of architectural drawing as a means to develop, communicate, and generate architectural ideas.

**ARCH 445 Visual Analysis of Architecture (3)** Two hours of lecture and two hours of studio per week. Prerequisite: ARCH400 or permission of department. For ARCH majors only. Study of visual principles of architectural and urban precedents through graphic analysis. Exercises include on-site observation, documentation and analysis. Focuses on the development of an architect’s sketchbook as a tool for life-long learning.

**ARCH 448 Selected Topics in Visual Studies for Architects (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

**ARCH 449 Independent Studies in Visual Studies for Architects (1-4)** Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

**ARCH 450 Introduction to Urban Planning (3)** Introduction to city planning theory, methodology and techniques, dealing with normative, urban, structural, economic, social aspects of the city; urban planning as a process. Architectural majors or by permission of the instructor. Lecture, seminar, 3 hours per week.

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**ARCH 456 Great Cities (3)** Prerequisite: permission of department. Case studies from a selection of the great cities of the world.

**ARCH 458 Selected Topics in Urban Planning (1-4)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

**ARCH 459 Independent Studies in Urban Planning (1-4)** Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

**ARCH 460 Site Analysis and Design (3)** Prerequisite: ARCH400 or permission of department. For ARCH majors only. Principles and methods of site analysis; the influence of natural and man-made site factors on site design and architectural form.

**ARCH 470 Computer Applications in Architecture (3)** Prerequisite: ARCH400 or permission of department. For ARCH majors only. Introduction to computer utilization, with emphasis on architectural applications.

**ARCH 478 Selected Topics in Architecture (1-4)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

**ARCH 479 Independent Studies in Architecture (1-4)** Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

**ARCH 480 Problems and Methods of Architectural Preservation (3)** Prerequisite: ARCH420 or permission of department. Theory and practice of preservation in America, with emphasis on the problems and techniques of community preservation.

**ARCH 481 The Architect in Archaeology (3)** Prerequisite: permission of department. The role of the architect in field archaeology and the analysis of excavating, recording, and publishing selected archaeological expeditions.

**ARCH 482 The Archaeology of Roman and Byzantine Palestine (3)** Archaeological sites in Palestine (Israel and Jordan) from the reign of Herod the Great to the Moslem conquest.

**ARCH 483 Field Archaeology (3)** Prerequisite: permission of department. Participation in field archaeology with an excavation officially recognized by proper authorities of local government.

**ARCH 488 Selected Topics in Architectural Preservation (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

**ARCH 489 Independent Studies in Architectural Preservation (1-4)** Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the Curriculum Committee.

### AREC – Agricultural and Resource Economics

**AREC 240 Introduction to Economics and the Environment (4)** Costs and social impacts of pollution and human crowding in the modern environment. The economic, legal and institutional causes of these problems. Public policy approaches to solutions and the costs and benefits of alternative solutions.

**AREC 250 Elements of Agricultural and Resource Economics (3)** An introduction to economic principles of production, marketing, agricultural prices and incomes, farm labor, credit, agricultural policies, and government programs.

**AREC 306 Farm Management (3)** The organization and operation of the farm business to obtain an income consistent with family resources and objectives. Principles of production economics and other related fields as applied to the individual farm business.

**AREC 332 Introduction to Natural Resource Policy (3)** Prerequisite: AREC240. Credit will be granted for only one of the following: AREC432 or AREC332. Formerly AREC 432. Development of natural resource policy and analysis of the evolution of public intervention in the use of natural resources. Examination of present policies and of conflicts between private individuals, public interest groups, and government agencies.

**AREC 365 World Hunger, Population, and Food Supplies (3)** An introduction to the problem of world hunger and possible solutions to it. World demand, supply, and distribution of food. Alternatives for leveling off world food demand, increasing the supply of food, and improving its distribution. Environmental limitations to increasing world food production.

**AREC 382 Computer-Based Analysis in Agricultural and Resource Economics (3)** One hour of lecture and three hours of laboratory per week. Prerequisites: MATH111/STAT100 or equivalent; ECON200/AREC240/AREC250 or equivalent. Credit will be granted for only one of the following: AREC182 or AREC382. Formerly AREC 182. Analysis of economic data using computer spreadsheets. Exercises include analyses of forest land shares, farmer willingness to pay, farm production planning, fisheries management, corn prices, and index numbers. Analyses features use of cell formulas, spreadsheet functions, Excel's Data Analysis Tool and Solver. This is a lab course featuring experimental learning.

**AREC 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**AREC 388 Honors Thesis Research (3-6)** Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

**AREC 399 Special Problems (1-3)** Repeatable to 6 credits if content differs. Concentrated reading and study in some phase of a problem in agricultural and/or natural resource economics.

**AREC 404 Applied Price Analysis (3)** Prerequisite: ECON306. An introduction to the economic analysis of price behavior, with applications to agricultural commodities. The use of price information in the decision-making process, the relation and supply and demand in determining price, and the relation of prices to grade, time, location, and stages of processing in the marketing system.

**AREC 405 Economics of Production (3)** Prerequisite: ECON306. The use and application of production economics in analysis of firm and policy decisions. Production functions, cost functions, multiple product and joint production, and production processes through time.

**AREC 407 Agricultural Finance (3)** Pre- or corequisite: ECON306. Application of economic principles to develop criteria for a sound farm business, including credit source and use, preparing and filing income tax returns, methods of appraising farm properties, the summary and analysis of farm records, leading to effective control and profitable operation of the farm business.

**AREC 425 Economics of Food Sector (3)** Prerequisite: ECON306 or permission of department. Credit will be granted for only one of the following: AREC425 or AREC489B. Formerly AREC 489B. Economic analysis of food sector issues, including food safety, agricultural biotechnology, and coordination mechanisms in the food supply chain.

**AREC 427 Economics of Commodity Marketing Systems (3)** Prerequisite: ECON306. Basic economic theory as applied to the marketing of agricultural commodities. Current developments affecting market structure including contractual arrangements, cooperative marketing, vertical integration, and governmental policies.

**AREC 433 Food and Agricultural Policy (3)** Prerequisite: ECON306. Economic and political context of governmental involvement in the farm and food sector. Historical programs and current policy issues. Analysis of economic effects of agricultural programs, their benefits and costs, and comparison of policy alternatives. Analyzes the interrelationship among international development, agricultural trade and general economic and domestic agricultural policies.

**AREC 435 Commodity Futures and Options (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ECON306; BMGT230 or ECON321. The economics and institutional features of commodity futures and options markets. Students will develop a basic understanding of the underlying price relationships between cash and futures markets and will apply this information to business risk management decision making.

**AREC 445 Agricultural Development, Population Growth and the Environment (3)** Prerequisite: ECON306. Development theories, the role of agriculture in economic development, the agricultural policy environment, policies impacting on rural income and equity, environmental impacts of agricultural development.

**AREC 453 Natural Resources and Public Policy (3)** Prerequisite: ECON306. Rational use and reuse of natural resources. Theory, methodology, and policies concerned with the allocation of natural resources among alternative uses. Optimum state of conservation, market failure, safe minimum standard, and cost-benefit analysis.

**AREC 455 Economics of Land Use (3)** Prerequisite: ECON306. Fundamentals of location theory. Microeconomics of land use decisions, including determination of rent and hedonic pricing models. Impacts of government decisions on land use, including regulation (e.g., zoning), incentives (transferable development rights), provision of public services, and infrastructure investments. Impacts of land use on environmental quality, including issues relating to sprawl, agricultural land preservation, and other topics of special interest.

**AREC 484 Econometric Applications in Agriculture and Environmental/Natural (3)** Resources Prerequisite: ECON321 or equivalent. Corequisite: ECON306. Application of econometric techniques to problems in agriculture, environment, and natural resources. Emphasis on the assumptions and computational techniques necessary to structure, estimate, and test economic models in the fields of agricultural, environmental, and resource economics.

**AREC 489 Special Topics in Agricultural and Resources Economics (3)** Repeatable to 9 credits.

### ARHU – Arts and Humanities

**ARHU 105 Honors Humanities First Semester Colloquium (1)** Restricted to Honors Humanities students only. Reading and discussion of the personal and social value of higher education with special attention to Arts and Humanities

**ARHU 106 Honors Humanities Second Semester Colloquium (1)** Prerequisite: ARHU105. For Honors Humanities students only. Formerly ARHU 109. Exploration of the cultural and educational resources of campus and metropolitan area. Attendance at various additional events and activities is required.

**ARHU 109 Honors Humanities Colloquium (1)** For Honors Humanities students only. Continuation of Honors Humanities Colloquium.

**ARHU 118 Honors Humanities First Year Seminar (3)** One hour of lecture and two hours of discussion/recitation per week. Prerequisite: admission to Honors Humanities. Repeatable to 6 credits if content differs. Formerly ARHU 100. Interdisciplinary introduction to basic issues in the history and methodologies of the humanities.

**ARHU 205 Second Year Seminar in Honors Humanities (3)** One hour of lecture and two hours of discussion/recitation per week. Prerequisite: Admission to Honors Humanities Program. Recommended: ARHU105 and ARHU106. Sophomore standing. Credit will be granted for only one of the following: ARHU218A or ARHU205. Formerly ARHU 218A. Seminar on basic issues and methodologies in the humanities and arts.

**ARHU 206 Honors Humanities Research Semester (1)** Restricted to Honors Humanities students only. Prerequisite: ARHU105, ARHU106 and ARHU205. Sophomore standing. Not open to students who have completed ARHU209. Credit will be granted for only one of the following: ARHU206 or ARHU209. Formerly ARHU 209. Independent research and completion of students' chosen Keystone Project developed during the preceding three semesters in ARHU105, ARHU 106 and ARHU205. Will meet as a class during the early part of the semester and discuss issues in humanities scholarship including theory, methodology and pedagogy.

**ARHU 218 Honors Humanities Second Year Seminar (3)** One hour of lecture and two hours of discussion/recitation per week. Prerequisite: admission to Honors Humanities. Repeatable to 6 credits if content differs. Seminar reflecting basic issues and basic methodologies in the humanities.

**ARHU 286 Experiential Learning (3-6)** Prerequisite: Permission of the College of Arts and Humanities. Restricted to students that have earned 12 credits at UM; 2.5 GPA. On-campus internships cannot be taken for credit through ARHU 286 ("on-campus" includes both the University of Maryland and other college campuses). For ARHU majors only. Designed for ARHU students who wish to complete an internship in one of the academic fields covered within the College of Arts and Humanities.

**ARHU 288 Seminar: Selected Issues in Honors Humanities (3)** For Honors Humanities students only. Repeatable to 9 credits if content differs. Seminar on important topics in Arts and Humanities for students in the Honors Humanities Program.

**ARHU 298 Special Problems in Arts and Humanities (3)** Repeatable if content differs.

**ARHU 299 Studies in Humanities Technology (1-3)** Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Selected topics in the use of Information Technology in the Humanities.



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**ARHU 308 Critical Eras: An Interdisciplinary View (3)** Repeatable to 6 credits if content differs. An interdisciplinary exploration of a critical period, ranging from a year to an era, stressing the relationship between different forms of human expression and the social milieu.

**ARHU 309 Forms and Forces of Human Experience: An Interdisciplinary Exploration (3)** Prerequisite: one course in at least one of the departments participating in the particular section. Repeatable to 6 credits if content differs. An interdisciplinary analysis of a particular social or cultural topic, attitude, or concern.

**ARHU 318 Writers' House Colloquium: Creative Writing Across Languages (1-3)** and Cultures Students must be admitted to the Jimenez-Porter Writers' House. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Colloquium designed to improve students' skills in literary and communication arts through lectures and discussions on the history and craft of writing across cultures. Topics include poetry and fiction in translation, writing for different media, genre writing, autobiography and memoir, and publishing and publication: the history and future of the book. Regular class attendance, participation and some written work will be expected of students.

**ARHU 319 Writers' House Second Year Colloquium: Form and Theory of Creative (1-3)** Writing Repeatable to 6 credits if content differs. Required course for Writers' House students pursuing the notation program. Offered in either poetry or imaginative prose writing. Students work at the intermediate level, refining creative writing skills through cross-cultural reading and writing exercises. As part of the course, students attend a series of lectures and readings given by professional writers.

**ARHU 328 Internship in Honors Humanities (1-3)** Nine hours of laboratory per week. Prerequisite: ARHU105 and permission of the Honors Humanities Director. Sophomore standing. Repeatable to 3 credits. Supervised service-learning in Honors Humanities.

**ARHU 329 Undergraduate Teaching Assistantship in Honors Humanities (1-3)** Nine hours of laboratory per week. Prerequisites: ARHU105, ARHU106, ARHU205 and permission of the HONHUM Director. Supervised pedagogical service-learning in the Honors Humanities curriculum.

**ARHU 338 Undergraduate Teaching Assistantship in the Writers' House (3)** Two hours of lecture per week. Prerequisite: ARHU318 and ARHU319; Open to Writer's House students only. Sophomore standing. Repeatable to 6 credits if content differs. Offers exceptional students the opportunity to work closely with a Writer's House faculty member and gain valuable experience. Writers' House UTAs also serve as peer mentors and program leaders. The TA assists with course planning, research, and student advising (as appropriate). Open to graduates of Writer's House notation program.

**ARHU 386 Experiential Learning (3-6)** Prerequisite: permission of the college. Junior standing.

**ARHU 388 Seminar: Advanced Honors Humanities (3)** For Honors Humanities students only. Repeatable to 9 credits if content differs. Advanced seminar on issues in Arts and Humanities for students in the Honors Humanities Program.

**ARHU 390 Cross-Cultural Perspectives on Quality (3)** Third course in one of four courses in the QUEST program. Examines strategic quality management in a globalized setting with emphasis on cross-cultural communication and culturally influenced perception of quality.

**ARHU 439 Interdisciplinary Studies in Arts and Humanities (3)** Repeatable to 6 credits if content differs. An interdisciplinary exploration of chronological, geographical or thematic topics in Arts and Humanities.

**ARHU 468 Peer Mentoring Program (1)** Prerequisite: permission of department. Sophomore standing. Repeatable to 3 credits if content differs. A workshop for sophomore, junior or senior students who wish to serve as peer mentors aiding first-year students to cope with the numerous issues which often arise in the transition to the university.

**ARHU 498 Special Topics in Arts and Humanities (3)** Repeatable if content differs.

### ARMY – Army

**ARMY 101 Basic Military Science I (1)** One hour of lecture and two hours of laboratory per week. Freshman standing. An exploration of leadership application through classroom instruction, leadership training and mentorship, adventure exercises and camaraderie. Hands on experience in managerial operations and military techniques. Applied military customs and techniques through physical and mental training.

**ARMY 102 Basic Military Science II (1)** One hour of lecture and two hours of laboratory per week. Prerequisite: ARMY101. Freshman standing. The continuation of the exploration of leadership application through classroom instruction, leadership training and mentorship, adventure exercises and camaraderie.

**ARMY 201 Basic Military Science III (2)** One hour of lecture and two hours of laboratory per week. Prerequisite: ARMY102. Sophomore standing. Introduction to a detailed view and application of army branches, staff techniques, customs and traditions. The course includes a laboratory period in applied leadership, common military tasks and physical fitness.

**ARMY 202 Basic Military Science IV (2)** One hour of lecture and two hours of laboratory per week. Prerequisite: ARMY201. Sophomore standing. Provides a greater awareness of Army leadership, advanced military tasks, customs and traditions of the U.S. Army and the Department of Defense. Includes a laboratory period in applied leadership, common military tasks and physical fitness.

**ARMY 301 Advanced Military Leadership I (3)** Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of Army ROTC. Junior standing. Reinforces understanding and application of Army leadership strategies, critical decision making methodologies, physical and mental fitness excellence. Includes a laboratory period in applied leadership, common military tasks and physical fitness.

**ARMY 302 Advanced Military Leadership II (3)** Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of Army ROTC. Junior standing. Prepares contracted students for certification at the Army National Advance Camp, a prerequisite for commissioning as an officer in the U.S. Army. Focus is directed to military tactics, squad and platoon drills, marksmanship, land navigation and fitness excellence. Includes a laboratory period in applied leadership skills as well as a three day field exercise.

**ARMY 401 Advanced Military Leadership III (3)** Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of Army ROTC. Senior standing. Introduces contracted students to the study of Army structure, practices and processes exercised by Army Commanders and Staff in completing personnel, logistics, training and combat operations. Includes a laboratory in applied leadership skills and two field exercises.

**ARMY 402 Advanced Military Leadership IV (3)** Three hours of lecture and five hours of laboratory per week. Prerequisite: Permission of Army ROTC. Senior standing. The military system and code of ethics in the military environment is studied. Topics include code of conduct during all forms of military operations, the Geneva Conventions and the ethical decision making process. Also includes a laboratory in applied leadership skills, fitness excellence and two field exercises.

### ARSC – Air Science

**ARSC 059 Air Force Officer Lab (1)** Two hours of laboratory per week. Repeatable to 8 credits if content differs. Formerly ARSC 159. Offers Air Force ROTC cadet officer's practical experience in military leadership, management, organization, and customs. May include visits to military installations and flight orientation. Open only to AFROTC cadets.

**ARSC 100 The USAF Today I (1)** Freshmen course for AFROTC cadets. Study of topics relating to the Air Force and defense. Focuses on organizational structure and missions of the Air Force; officership; and an introduction to both written and oral communication skills. Open to all university students. AFROTC cadets must also register for ARSC159.

**ARSC 101 The USAF Today II (1)** Continuation of ARSC100 for freshmen AFROTC cadets. The mission, organization and systems of the U.S. Air Force offensive, defensive, and aerospace support forces and the use of these forces to support contemporary societal demands. Open to all university students. AFROTC cadets must also register for ARSC159.

**ARSC 159 Air Force Officer Lab (1)** Two hours of laboratory per week. Corequisite: any other ARSC course. For AFROTC cadets only. This course does not carry credit towards any degree at the University. Repeatable to 8 credits if content differs. Offers Air Force ROTC cadet officer's practical experience in military leadership, management, organization, and customs. May include visits to military installations and flight orientation. Open only to AFROTC cadets.

**ARSC 200 The Development of Air Power I (1)** Sophomore course for AFROTC cadets. Study of factors contributing to the development of air power from its earliest beginnings through two world wars; the evolution of air power concepts and doctrine; introductory leadership; and assessment of communicative skills. Open to all university students. AFROTC cadets must also register for ARSC159.

**ARSC 201 The Development of Air Power II (1)** Continuation of ARSC 200 for sophomore AFROTC cadets. The study of historical events, leaders, and technical developments which surrounded the growth of air power; the basics of leadership; environment of an Air Force officer; and concepts of ethical behavior. Open to all university students. AFROTC cadets must also register for ARSC159.

**ARSC 205 The U.S. Air Force and Air Power (4)** Open only to applicants selected by AFROTC to compete for entrance into the two-year AFROTC program as a contract cadet. Six week field training session held during summer months at designated Air Force bases. Successful completion is a prerequisite for acceptance into the two year AFROTC program. Course content consists of a combination of academics, physical training and leadership laboratory experiences approximating those four year cadets gain in ARSC100/101 and ARSC200/201.

**ARSC 210 Field Training (2)** 18 hours of lecture, 18 hours of laboratory, and 10 hours of discussion/recitation per week. Prerequisite: AFROTC cadets with permission of department. Sophomore standing. Designed to train Air Force officer candidates in the skills of leadership, teamwork, officership, and the profession of arms. Successful completion is mandatory for all candidates in order to complete the AFROTC program and attain an Air Force commission.

**ARSC 300 Management and Leadership I (3)** Corequisite: ARSC159 or permission of department. Junior standing. Credit will be granted for only one of the following: ARSC300 or ARSC310. Formerly ARSC 310. The study of leadership and management fundamentals, professional knowledge, Air Force doctrine, and written and oral communication skills. Case studies are used to examine leadership and management situations.

**ARSC 301 Management and Leadership II (3)** Corequisite: ARSC159 or permission of department. Junior standing. Credit will be granted for only one of the following: ARSC301 or ARSC311. Formerly ARSC 311. Continuation of ARSC300. Study of leadership and management skills and leadership ethics as well as written and oral communication skills required of Air Force officers.

**ARSC 399 Independent Study in Air and Space Power Implementation (1-3)** Prerequisite: permission of department. Recommended: ARSC400 and ARSC401. Independent study to broaden understanding of the implementation of air and space power. Topics of research are selected by the student and instructor to focus the student on a particular aspect of air and space power implementation during a particular campaign or conflict.

**ARSC 400 National Security Forces in Contemporary American Society I (3)** Prerequisite: ARSC300 or ARSC301; or permission of department. Corequisite: ARSC159 or permission of department. Senior standing. Credit will be granted for only one of the following: ARSC320 or ARSC400. Formerly ARSC 320. Study of American national security policy and processes to include information and implementation, impact of major national and international actors, and development of major policy issues.

**ARSC 401 National Security Forces in Contemporary American Society II (3)** Prerequisite: ARSC300 or ARSC301; or permission of department. Corequisite: ARSC159 or permission of department. Senior standing. Credit will be granted for only one of the following: ARSC321 or ARSC401. Formerly ARSC 321. This course examines various subjects including: military law/justice, preparation for active duty, and current issues affecting military professionalism.

### ARTH – Art History & Archaeology

**ARTH 100 Introduction to Art (3)** No credit toward the major can be received for this course. Major approaches to understanding the visual arts, and includes analysis of techniques, subject matter, and form. Painting, sculpture, architecture, and the graphic arts.

**ARTH 200 Art of the Western World to 1300 (3)** Painting, sculpture, and architecture from prehistoric times to the Renaissance.

**ARTH 201 Art of the Western World after 1300 (3)** Painting, sculpture, and architecture from the Renaissance to the present.

**ARTH 250 Art and Archaeology of Ancient America (3)** Art and archaeology of ancient Mesoamerica from 500 B.C. to 1500 A.D.

**ARTH 275 Art and Archaeology of Africa (3)** Appreciation of the art of African cultures. A survey of African culture through painting, sculpture, and architecture from prehistoric times to the present.

**ARTH 289 Special Topics in Art History and Archaeology (3)** Repeatable to 6 credits if content differs. Selected topics in the visual arts to introduce students to the history of various modes of visual expression and communication.

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**ARTH 290 Art of Asia (3)** South and East Asian art from prehistory through the mid-19th century.

**ARTH 300 Egyptian Art and Archaeology (3)** Formerly ARTH 400. Sites and monuments of painting, sculpture, architecture, and the minor arts of ancient Egypt from earliest times through the Roman conquest. Emphasis on the pharaonic period.

**ARTH 301 Aegean Art and Archaeology (3)** Formerly ARTH 401. Sites and monuments of painting, sculpture, architecture, and the minor arts of Crete, the Cycladic islands, and the Greek mainland from the earliest times to the downfall of the Mycenaean empire.

**ARTH 302 Greek Art and Archaeology (3)** Formerly ARTH 402. Sites and monuments of painting, sculpture, architecture, and the minor arts from the Geometric through the Hellenistic period with emphasis on mainland Greece in the Archaic and Classical periods.

**ARTH 303 Roman Art and Archaeology (3)** Formerly ARTH 403. Sites and monuments of painting, sculpture, architecture, and the minor arts from the earliest times through the third century A.D. with emphasis on the Italian peninsula from the Etruscan period through that of Imperial Rome.

**ARTH 307 Late Roman and Early Christian Art and Archaeology (3)** Formerly ARTH 405. Painting, sculpture, architecture, and the minor arts from the early third century through the sixth century A.D.

**ARTH 310 Byzantine Art and Archaeology (3)** Formerly ARTH 406. Painting, sculpture, architecture, and the minor arts from the seventh century to 1453 A.D.

**ARTH 313 Early Medieval Art (3)** Formerly ARTH 410. Painting, sculpture and architecture in Western Europe, ca. 500-1150.

**ARTH 314 Gothic Art (3)** Formerly ARTH 411. Painting, sculpture and architecture in Western Europe, ca. 1150-1400.

**ARTH 320 Fourteenth and Fifteenth-Century Northern European Art (3)** Formerly ARTH 420. The art of northern Europe with an emphasis on painting in the Netherlands and France.

**ARTH 321 Sixteenth-Century Northern European Painting (3)** Formerly ARTH 425. Painting in France, Germany, England, and the Low Countries during the Renaissance and Reformation.

**ARTH 323 Fifteenth-Century Italian Renaissance Art (3)** Formerly ARTH 415. Painting, sculpture, architecture, and the decorative arts of the fifteenth century in Italy.

**ARTH 324 Sixteenth-Century Italian Renaissance Art (3)** Formerly ARTH 416. Painting, sculpture, architecture, and the decorative arts of the sixteenth century in Italy.

**ARTH 330 Seventeenth-Century European Art (3)** Formerly ARTH 430. Painting, sculpture and architecture concentrating on Italy, Spain, France, and England.

**ARTH 335 Seventeenth-Century Art in the Netherlands (3)** Formerly ARTH 435. Painting, sculpture and architecture in seventeenth-century Netherlands.

**ARTH 343 Eighteenth-Century European Art (3)** Formerly ARTH 443. From the Rococo to Neo-classicism, major developments in painting, architecture, sculpture, and the landscape garden in eighteenth-century France, England, Italy, Spain, and Germany.

**ARTH 345 Nineteenth-Century European Art to 1850 (3)** Formerly ARTH 445. The major trends from Neo-Classicism to Romanticism in painting, sculpture and architecture in Europe.

**ARTH 346 Nineteenth-Century European Art from 1850 (3)** Formerly ARTH 446. The major trends from Realism through Impressionism to Symbolism and Art Nouveau, in painting, sculpture, and architecture.

**ARTH 350 Twentieth-Century Art to 1945 (3)** Formerly ARTH 455. Painting, sculpture and architecture in Europe and America from the late nineteenth century to the end of World War II.

**ARTH 351 Twentieth Century Art from 1945 (3)** Formerly ARTH 456. Painting, sculpture and architecture in Europe and America from 1945 to the present.

**ARTH 360 History of American Art to 1876 (3)** Formerly ARTH 453. Painting, sculpture, architecture, and decorative arts in North America from the colonial period to 1876.

**ARTH 361 American Art Since 1876 (3)** Formerly ARTH 460. Painting, sculpture, architecture, and the decorative arts in North America after 1876.

**ARTH 370 Latin American Art and Archaeology before 1500 (3)** Formerly ARTH 470. Pre-Hispanic painting, sculpture, and architecture, with a focus on the major archaeological monuments of Mexico.

**ARTH 371 Latin American Art and Archaeology After 1500 (3)** Formerly ARTH 471. The effect of mingling European visual ideas with pre-Hispanic traditions. The formation of Latin American colonial art. How Native American people transformed European ideas and forms.

**ARTH 375 Ancient Art and Archaeology of Africa (3)** Formerly ARTH 475. Art of the African continent from rock art through the nineteenth century. The cultural meaning of painting, sculpture, architecture, and artifacts from major archaeological sites.

**ARTH 376 Living Art of Africa (3)** Formerly ARTH 476. Art styles among the segmentary, centralized and nomadic people of Africa. The iconography and function of their art and its relationship to their various societies, cults and ceremonies.

**ARTH 378 Special Topics for Honors Students (3)** Prerequisites: admission to art history honors and permission of department. For ARTH majors only. Repeatable to 6 credits. Writing of a research paper. With an instructor's permission work may be done in conjunction with a graduate colloquium or seminar.

**ARTH 384 Art of Japan (3)** Formerly ARTH 395. A chronological survey of Japanese painting, sculpture, architecture, and the applied arts.

**ARTH 385 Art of China (3)** Formerly ARTH 390. A chronological survey of Chinese painting, sculpture, and the applied arts.

**ARTH 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**ARTH 389 Special Topics in Art History and Archaeology (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

**ARTH 407 Art and Archaeology of Mosaics (3)** Mosaic pavements in their archaeological, art historical, and architectural context from circa 300 B.C. through circa A.D. 700.

**ARTH 418 Special Problems in Italian Renaissance Art (3)** Repeatable to 6 credits if content differs. Focus upon aspects of painting, sculpture, and architecture of Renaissance.

**ARTH 426 Renaissance and Baroque Sculpture in Northern Europe (3)** Sculpture in France, Germany, England, and the Low Countries from the fourteenth to the seventeenth century.

**ARTH 444 British Painting, Hogarth to the Pre-Raphaelites (3)** A survey of British painting focusing on the establishment of a strong native school in the genres of history painting, narrative subjects, portraiture, sporting art, and landscape.

**ARTH 451 Primitivism in Twentieth-Century Art (3)** Examines the concept of primitivism as a specifically West-European cultural phenomenon.

**ARTH 452 Between East and West: Modernism in East and Central Europe (3)** Explores the modernist movements of Eastern and Central Europe, beginning with Russia, circa 1861.

**ARTH 453 Sculpture in the Expanded Field (3)** Focus on a series of problems posed by specific types of 'sculptural' work that link the modern with the postmodern.

**ARTH 457 History of Photography (3)** History of photography as art from its inception in 1839 to the present.

**ARTH 462 Twentieth-Century Black American Art (3)** Formerly ARTH 474. The visual arts of Black Americans in the twentieth century, including crafts and decorative arts.

**ARTH 466 Feminist Perspectives on Women in Art (3)** Also offered as WMST466. Credit will be granted for only one of the following: ARTH466 or WMST466. Principal focus on European and American women artists of the 19th and 20th centuries, in the context of the new scholarship on women.

**ARTH 485 Chinese Painting (3)** Formerly ARTH 490. Chinese painting history from the second century B.C. through the twentieth century, covering cultural, stylistic and theoretical aspects.

**ARTH 486 Japanese Painting (3)** Formerly ARTH 495. Japanese painting from the sixth through the nineteenth century, including Buddhist icon painting, narrative scrolls, and Zen-related ink painting.

**ARTH 488 Colloquium in Art History (3)** Prerequisite: permission of department. Repeatable to 9 credits if content differs. Colloquium to investigate a specific topic in depth.

**ARTH 489 Special Topics in Art History (3)** Prerequisite: permission of department. Repeatable to 9 credits if content differs.

**ARTH 494 Archaeological Theories, Methods, and Practice (3)** 45 semester hours. Formerly ARTH 484. An examination of the theories, methods, and practices of New and Old World archaeology.

**ARTH 496 Methods of Art History and Archaeology (3)** Prerequisite: permission of department. For ARTH majors only. Methods of research and criticism applied to typical art-historical/ archaeological problems, familiarizing the student with bibliography and other research tools. Introduction to the historiography of art history and archaeology, surveying the principal theories, encouraging methodological debates within the discipline. Course for majors who intend to go on to graduate school.

**ARTH 498 Directed Studies in Art History I (2-3)** Prerequisite: permission of department. Repeatable if content differs. Junior standing.

**ARTH 499 Honors Thesis (1-6)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

### ARTT – Art Studio

**ARTT 100 Two Dimensional Art Fundamentals (3)** Six hours of laboratory per week. Credit will be granted for only one of the following: ARTT100, ARTS100, DESN101, or APDS101. Formerly ARTS 100. Principles and elements of pictorial space examined through the manipulation and organization of various materials.

**ARTT 110 Elements of Drawing I (3)** Six hours of laboratory per week. Formerly ARTS 110. Media and related techniques to depict still-life, figure and nature.

**ARTT 150 Introduction to Art Theory (3)** Examination of contemporary art; review of global, philosophic and critical positions by the examination of works of art.

**ARTT 200 Three Dimensional Art Fundamentals (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ARTT100 and ARTT110. Credit will be granted for only one of the following: ARTT200, ARTS200, DESN102, or APDS102. Formerly ARTS 200. Three-dimensional form and space examined through the manipulation and organization of various materials.

**ARTT 208 Intermediate Special Topics in Art (3)** Six hours of laboratory per week. Prerequisites: ARTT110; and ARTT200. Repeatable to 6 credits if content differs. Formerly ARTS 208. Development of student's work on an intermediate studio level within the context of a special topic.

**ARTT 210 Elements of Drawing II (3)** Six hours of laboratory per week. Prerequisite: ARTT110. Formerly ARTS 210. Continuation of ARTT110 with additional emphasis on pictorial space.

**ARTT 320 Elements of Painting (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS 320. Basic tools and language of painting.

**ARTT 330 Elements of Sculpture: Metal Casting (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS 330. Basic sculptural techniques and processes related to metal casting.

**ARTT 331 Elements of Sculpture: Steel (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Basic techniques related to steel fabricated sculpture; torch cutting and welding, arc welding, hot forging.

**ARTT 332 Elements of Sculpture: Stone (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTT 335. Basic sculptural techniques and processes using stone and related materials.

**ARTT 333 Elements of Sculpture: Wood and Mixed Media (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Basic sculptural techniques and processes using wood and mixed media.

**ARTT 334 Elements of Sculpture: Assembled Form and Material (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS 334. Examines sculptural concepts through a variety of materials, basic techniques and processes related to building and fabrication.

**ARTT 340 Elements of Printmaking: Intaglio (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS 340. Basic techniques and processes related to etching, aquatint and drypoint.

**ARTT 341 Elements of Printmaking: Woodcut and Relief (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS 341. Basic techniques and processes related to woodcuts, linocuts and other relief media.



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**ARTT 342 Elements of Printmaking: Collagraphy (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS 342. Basic techniques and processes related to collagraph printing.

**ARTT 343 Elements of Printmaking: Screen Printing (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS 343. Basic techniques and processes related to serigraph and silkscreen printing.

**ARTT 344 Elements of Printmaking: Lithography (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Formerly ARTS 344. Basic techniques and processes related to drawing, preparing and printing images on lithograph stones or plates.

**ARTT 350 Elements of Design (3)** Six hours of laboratory per week. Prerequisites: ARTT200, and ARTT210; and permission of department through portfolio review. Not open to students who have completed ARTT250. Credit will be granted for only one of the following: ARTT350 or ARTT250. Formerly ARTT 250. Investigation of basic design principles and methods. Introduction to basic typography, layout, illustration, exhibit design, and product/package design.

**ARTT 351 Elements of Graphic Design and Illustration (3)** Six hours of laboratory per week. Prerequisite: ARTT250 or ARTT350 or permission of instructor. Credit will be granted for only one of the following: ARTT350 or ARTT250. Instruction to visual communications, logo, multi-page publication, marketing graphics, as well as a variety of media and techniques of editorial illustration.

**ARTT 352 Three Dimensional Graphics (3)** Six hours of laboratory per week. Prerequisite: ARTT350 or permission of instructor. Graphic design and color concepts applied to three-dimensional objects and architectural environments. Presentations include scale drawings, scale models and real size mock-ups.

**ARTT 353 Elements of Photography (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Introduction to black-and-white photography. Basic technical and aesthetic vocabulary, camera mechanics and darkroom techniques. Introduction to the photographic message and meaning in both fine art and design concept.

**ARTT 354 Elements of Computer Graphics (3)** Six hours of laboratory per week. Prerequisites: ARTT150, ARTT200, and ARTT210; or permission of department. Introduction to computer graphics, imaging, illustration and mixed media.

**ARTT 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**ARTT 388 Issues in Teaching Art in Higher Education (1)** One hour of discussion/recitation per week. Prerequisite: permission of department. Must be taken in conjunction with ARTT389. Junior standing. Repeatable to 2 credits if content differs. Individual contractual agreement with faculty/mentor. Individualized discussion addressing the issues of teaching art, while simultaneously assisting in the teaching of a specific department course offering. Must have previously received an A in the specified class.

**ARTT 389 Department of Art Undergraduate Teaching Assistantship (3)** Six hours of laboratory per week. Prerequisite: permission of department. Must be taken in conjunction with ARTT388 or EDUC388. Repeatable to 6 credits if content differs. Individual contractual agreement with faculty/mentor. Individualized assistantship in the teaching of a specified department course offering. Must have previously received an "A" grade for the class to be assisting.

**ARTT 399 Department of Art Research Assistantship (3)** Nine hours of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Individual contractual agreement with faculty/mentor. Individualized experiential learning developed in relation to art related research issues.

**ARTT 418 Drawing (3)** Six hours of laboratory per week. Prerequisite: ARTT210. Repeatable to 12 credits. Formerly ARTS 418. Original compositions from the figure and nature, supplemented by problems of personal and expressive drawing.

**ARTT 428 Painting (3)** Six hours of laboratory per week. Prerequisite: ARTT320. Repeatable to 12 credits. Formerly ARTS 428. Original compositions based upon nature, figure, still life and expressive painting emphasizing development of personal directions.

**ARTT 438 Sculpture (3)** Six hours of laboratory per week. Prerequisites: one 300-level sculpture course; and permission of department. Repeatable to 12 credits. Formerly ARTS 438. Continuation of 300-level elements of sculpture courses with emphasis on developing personal directions in chosen media.

**ARTT 448 Printmaking (3)** Six hours of laboratory per week. Prerequisites: one 300-level printmaking course; and permission of department. Repeatable to 12 credits. Formerly ARTS 448. Continuation of 300-level elements of printmaking courses with emphasis on developing personal directions in chosen media.

**ARTT 449 Advanced Photography (3)** Six hours of laboratory per week. Prerequisite: ARTT353. Repeatable to 12 credits if content differs. Advanced photographic techniques and theory. Digital photography, image and text, non-silver photography, instant photography, color photography and other special tools.

**ARTT 456 Computer Modeling and Animation (3)** Six hours of laboratory per week. Prerequisite: ARTT354. Introduction to computer animation as a time-based artistic medium. Technical principles and processes involved in the creation of an animated short film; students will research the various ways in which computer animation can function as a time-based medium.

**ARTT 458 Graphic Design (3)** Six hours of laboratory per week. Prerequisites: ARTT350 and ARTT351. Repeatable to 12 credits if content differs. Advanced techniques and theory of graphic design. Image and text, poster, magazine, film, and television graphics, propaganda symbolism included.

**ARTT 459 Three-Dimensional Design: Form and Function (3)** Six hours of laboratory per week. Prerequisite: ARTT352. Repeatable to 12 credits if content differs. Advanced techniques and theory of product design, furniture design, exhibit design and package design.

**ARTT 460 Seminar in Art Theory (3)** Senior standing. Exploration of relationship between content and processes of art in a contemporary multi-cultural context.

**ARTT 461 Readings in Art Theory (3)** Prerequisite: senior standing or permission of department. Reading and critical analysis in contemporary art.

**ARTT 463 Principles and Theory: African-American Art (3)** Not open to students who have completed ARTH474. Formerly ARTH 474. Principles basic to the establishment of aesthetic theories common to an ethnic or minority art examined through the works of art by Americans of African ancestry.

**ARTT 464 Theory of Contemporary Global Art Making (3)** Credit will be granted for only one of the following: ARTT464 or ARTT664. Theory of contemporary global art making. Influence of colonization, availability of material and development of imagery.

**ARTT 468 Seminar on the Interrelationship between Art and Art Theory (3)** Prerequisite: Junior standing or permission of department. Repeatable to 6 credits if content differs. Formerly ARTS 468. The relationship between a student's work and the theoretical context of contemporary art.

**ARTT 469 Professional Practice (3)** Prerequisite: Senior standing or permission of department. Repeatable to 6 credits if content differs. Formerly ARTT 462. Business aspects of being an artist, with an emphasis on starting and maintaining a professional career.

**ARTT 478 Papermaking (3)** Six hours of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Traditional and contemporary Western papermaking techniques with emphasis on creative approaches and continued individual artistic growth.

**ARTT 479 Computer Graphics (3)** Six hours of laboratory per week. Prerequisite: ARTT354. Repeatable to 12 credits if content differs. Advanced techniques and theory of computer imaging, graphics, illustration, and mixed media.

**ARTT 480H Honors Seminar (3)** Prerequisites: Acceptance into Department Honors Program, completion of ARTT300 - 400H and 418H electives, and permission of department. Team-taught seminar focusing on relationship between student's work and the theoretical context of contemporary art.

**ARTT 487 Capstone for Citation in Interdisciplinary Multimedia and Technology (1)** Prerequisite: At least nine credits with the citation. Independent study: a paper or website synthesizing the various citation learning experiences.

**ARTT 489 Advanced Special Topics in Art (3)** Six hours of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly ARTS 489. Development of student's work on an advanced studio level within the context of a special topic.

**ARTT 498 Directed Studies in Studio Art (1-3)** Prerequisite: permission of department. Repeatable to 12 credits if content differs. Formerly ARTS 498. Independent work. Meetings with faculty and studio time arranged.

### ASTR – Astronomy

**ASTR 100 Introduction to Astronomy (3)** Credit for ASTR100 cannot be obtained after, or simultaneously with, receiving credit for any astronomy course numbered 250 or higher. Credit will be granted for only one of the following: ASTR100 or ASTR101 or ASTR120. An elementary course in descriptive astronomy, especially appropriate for non-science students. Sun, moon, planets, stars and nebulae, galaxies, evolution.

**ASTR 101 General Astronomy (4)** Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Credit for ASTR101 cannot be obtained after, or simultaneously with, receiving credit for any astronomy course numbered 250 or higher. Credit will be granted for only one of the following: ASTR100 or ASTR101 or ASTR120. Descriptive astronomy, appropriate for non-science majors. Sun, moon, planets, stars, nebulae, galaxies and evolution. Laboratory exercises include use of photographic material, computer simulations and observing sessions if weather permits.

**ASTR 111 Observational Astronomy Laboratory (1)** Two hours of laboratory per week. Corequisite: ASTR100. Not open to students who have completed ASTR101. Credit will be granted for only one of the following: ASTR111 or ASTR101. Two hours of laboratory per week. Single evening laboratory projects plus semester-long observing projects involving work both in and out of class. Lunar surface features; the nighttime sky; changing positions of sun, moon, planets; stellar spectra; observations of stars and nebulae in our galaxy.

**ASTR 120 Introductory Astrophysics - Solar System (3)** Pre- or corequisite: MATH115. Not open to students who have completed ASTR100, ASTR101 or ASTR200. Credit will be granted for only one of the following: ASTR100 or ASTR101 or ASTR120 or ASTR200. For students majoring in astronomy or with a strong interest in science. Topics include development of astronomy, planetary orbits, electromagnetic radiation, telescopes as well as constituents and origin of the solar system (planets, satellites, comets, asteroids, meteoroids, etc.).

**ASTR 121 Introductory Astrophysics II - Stars and Beyond (4)** Three hours of lecture and two hours of laboratory per week. Prerequisites: MATH115 and ASTR120, or permission of department. Not open to students who have completed ASTR200. Credit will be granted for only one of the following: ASTR121 or ASTR200. For students majoring in astronomy or with a strong interest in science. Includes instrumentation, stellar properties, stellar evolution, structure of the galaxy, other galaxies, large scale structure, Big Bang Theory and future of the universe.

**ASTR 220 Collisions in Space (3)** Not open to astronomy majors. Appropriate for non-science majors. Application of scientific method to the study of collisions in space. Impact cratering on planets and satellites. Possible implications for the Earth. Interactions between stars and galaxies. Possible effects due to supermassive black holes. Events like the 1994 comet crash on Jupiter and data from the Hubble Space Telescope will be highlighted.

**ASTR 288 Special Projects in Astronomy (1-3)** Prerequisite: permission of department. Repeatable to 6 credits. Independent study, short research projects, tutorial reading, and assisting with faculty research and teaching under special supervision.

**ASTR 300 Stars and Stellar Systems (3)** Prerequisites: ASTR100 or ASTR101 and completion of CORE Distributive Studies requirement in Mathematics and Sciences or permission of department. Designed primarily for non-science majors. Study of stars-types, properties, evolution, and distribution in space; supernovae, pulsars, and black holes.

**ASTR 310 Observational Astronomy (3)** Three hours of lecture and one hour of laboratory per week. Prerequisites: ASTR121 or ASTR200; PHYS171 or PHYS161; or permission of department. For ASTR majors only. Introduction to current optical observational techniques, with brief coverage of infrared, ultraviolet, and x-ray techniques. Statistics, spherical trigonometry time, catalogs, geometrical and physical optics, telescopes, optical instruments. Effects of the atmosphere. Practical work at the observatory using a CCS camera. Some nighttime observing sessions.

**ASTR 320 Theoretical Astrophysics (3)** Prerequisites: ASTR121 or ASTR200; PHYS273 or PHYS270 and 271 (Formerly: PHYS263); or permission of department. Application of selected physics concepts in an astrophysical context. Topics would include gravity (Keplerian motion, Virial theorem, Roche limit, dynamical friction); gas dynamics (hydrostatic equilibrium, stellar models, spiral density waves), thermodynamics and statistical physics (Boltzmann distribution, Wien displacement, convective instability, degenerate gas); atomic physics (quantum principles, H atom, permitted and forbidden lines); radiation processes (line radiation, opacity).

**ASTR 330 Solar System Astronomy (3)** Prerequisites: ASTR100 or ASTR101 and completion of CORE Distributive Studies requirement in Mathematics and Sciences or permission of department. Designed primarily for non-science majors. The structure of planets and of their atmospheres, the nature of comets, asteroids, and satellites. Comparison of various theories for the origin of the solar system. Emphasis on a description of recent data and interpretation.

**ASTR 340 Origin of the Universe (3)** Prerequisites: ASTR100 or ASTR101 and completion of the CORE Distributive Studies requirement in Mathematics and the Sciences or permission of department. Designed primarily for non-science majors. A study of our progression of knowledge about the universe. Topics include: early cosmological models, geocentric vs. heliocentric theory, curvature of space, Hubble's Law, Big Bang Theory, microwave background radiation, evolution of stars and galaxies, dark matter, active galaxies, quasars and the future of the universe.

**ASTR 380 Life in the Universe - Astrobiology (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ASTR100 or ASTR101 and completion of CORE Distributive Studies requirement in Mathematics and Sciences or permission of department. Designed primarily for non-science majors. Study of the astronomical perspective on the conditions for the origin and existence of life in the universe.

**ASTR 386 Experiential Learning (1-3)** Prerequisite: permission of department. Junior standing.

**ASTR 398 Special Topics in Astronomy (3)** Prerequisite: junior standing or permission of department. Repeatable to 6 credits if content differs. This course is designed primarily for students not majoring in astronomy and is suitable for nonscience students. It will concentrate study in some limited field in astronomy which will vary from semester to semester. Possible subjects for study are the solar system, extragalactic astronomy and cosmology, the inconstant universe.

**ASTR 399 Honors Seminar (1-16)** Enrollment is limited to students admitted to the departmental honors program in astronomy. Credit according to work done.

**ASTR 400 Stellar Evolution (3)** Prerequisite: ASTR121 or ASTR200; PHYS270 and PHYS271 (Formerly 263) or PHYS273; or permission of department. Survey of stellar structure and evolution. Development of equations governing the physical processes. Comparison with observational results.

**ASTR 410 Radio Astronomy (3)** Prerequisites: ASTR121 or ASTR200; PHYS270 and PHYS271 (formerly:PHYS263) or PHYS273; or permission of department. Introduction to current observational techniques in radio astronomy. The radio sky, radiophysics, coordinates and catalogs, antenna theory, Fourier transforms, interferometry and arrays, aperture synthesis, and radio detectors.

**ASTR 415 Computational Astrophysics (3)** Prerequisite: permission of department. Recommended: computer programming knowledge. For ASTR majors only. Credit will be granted for only one of the following: ASTR498C or ASTR415. Formerly ASTR 498C. Introduction to the most important computational techniques being used in research in astrophysics. Topics include modern high performance computer architectures, scientific visualization and data analysis, and detailed descriptions of numerical algorithms for the solution to a wide range of mathematical systems important in astrophysics.

**ASTR 421 Galaxies (3)** Prerequisite: ASTR121 and; (PHYS270 and PHYS271} Formerly: PHYS263) or PHYS273. For ASTR majors only. Credit will be granted for only one of the following: ASTR421 or ASTR498G. Formerly ASTR 498G. Introduction to structure, kinematics, and dynamics of normal and peculiar galaxies. Quantitative descriptions of normal spiral galaxies (like our Milky Way) and elliptical galaxies will be followed by more exotic considerations such as interacting and merging galaxies, and active galactic nuclei.

**ASTR 422 Cosmology (3)** Prerequisite: ASTR121 and (PHYS270 and PHYS271 (Formerly: 263)) or PHYS273. For ASTR majors only. Credit will be granted for only one of the following: ASTR422 or ASTR498V. Formerly ASTR 498V. Introduction to modern cosmology. Topics include large scale structure of universe, the intergalactic medium, the nature of dark matter cosmological models and galaxy formation.

**ASTR 430 The Solar System (3)** Prerequisite: ASTR121 or ASTR200; PHYS270 and PHYS271 (Formerly: 263) or PHYS273; or permission of department. Formation and evolution of the Solar System. Planetary surfaces, interiors, atmospheres, and magnetospheres. Asteroids, comets, planetary satellites, and ring systems. Emphasis on using basic physics to understand observed properties of the Solar System. Intended for students majoring in the physical sciences.

**ASTR 450 Orbital Dynamics (3)** Prerequisite: ASTR121 or ASTR200; PHYS270 and PHYS271 {Formerly: 263} or PHYS273; or permission of department. Vectorial mechanics, motion in a central force field, gravitational and non-gravitational forces, the two-body and three-body problems, orbital elements and orbital perturbation theory, resonances in the solar system, chaos. Intended for students majoring in any of the physical sciences.

**ASTR 498 Special Problems in Astronomy (1-6)** Prerequisite: major in physics or astronomy or permission of department. Research or special study. Credit according to work done.

## BCHM – Biochemistry

**BCHM 261 Elements of Biochemistry (3)** Prerequisite: CHEM104 or CHEM233 or CHEM235. Not open to students who have completed BCHM461. For undergraduate students who desire a one-semester biochemistry course rather than a two-semester sequence. Basic chemistry and metabolism of most molecules of biological importance.

**BCHM 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**BCHM 461 Biochemistry I (3)** Prerequisite: {CHEM241 and CHEM242}, or CHEM243 or CHEM247. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Not open to students who have completed BCHM261 or BCHM463. Credit will be granted for only one of the following: BCHM261, BCHM461, or BCHM463. First semester of a comprehensive introduction to modern chemistry. Structure, chemical properties, and function of proteins and enzymes, carbohydrates, lipids, and nucleic acids. Basic enzyme kinetics and catalytic mechanisms.

**BCHM 462 Biochemistry II (3)** Prerequisite: BCHM461. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Not open to students who have completed BCHM463. Credit will be granted for only one of the following: BCHM462 or BCHM463. A continuation of BCHM 461. Metabolic pathways and metabolic regulation, energy transduction in biological systems, enzyme catalytic mechanisms.

**BCHM 463 Biochemistry of Physiology (3)** Prerequisite: {CHEM241 and CHEM242}, CHEM243 or CHEM247. A grade of C or better in the prerequisite is required for Life Science majors and recommended to all students. Not open to students who have completed BCHM461 or BCHM462. Credit will be granted for only one of the following: BCHM463 or {BCHM461 or BCHM462}. A one-semester introduction to general biochemistry. A study of protein structure, enzyme catalysis, metabolism, and metabolic regulation with respect to their relationship to physiology.

**BCHM 464 Biochemistry Laboratory (3)** One hour of lecture and five hours of laboratory per week. Prerequisite: BCHM461 or BCHM463. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Corequisite: BCHM465. BCHM, CHEM and Nutritional Sciences majors have first priority, followed by other life science majors. Biochemical and genetic methods for studying protein function. Site-directed mutagenesis and molecular cloning, protein purification, enzyme activity assays, computer modeling of protein structure.

**BCHM 465 Biochemistry III (3)** Prerequisite: BCHM461 or BCHM463. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Recommended: BCHM462. CORE Capstone (CS) Course. An advanced course in biochemistry. Biochemical approach to cellular information processing. DNA and RNA structure. DNA replication, transcription, and repair. Translation of mRNA to make proteins.

**BCHM 485 Physical Biochemistry (3)** Prerequisite: CHEM481. For BCHM majors only. Credit will be granted for only one of the following: CHEM482 or BCHM485. The application of physical chemistry to biological systems. Principal topics: statistical mechanics, transport processes in liquid phase, chemical and biochemical kinetics, modeling and simulation, polymer dynamics.

## BIOM – Biometrics

**BIOM 301 Introduction to Biometrics (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH113 or MATH115. Descriptive statistics, introduction to probability, sampling, confidence interval estimation, hypothesis testing, simple regression and correlation. Emphasis on simple applications of statistical techniques and interpretation of statistical results.

**BIOM 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**BIOM 402 Statistics for Human and Veterinary Medicine (3)** Prerequisite: BIOM301, PSYC200, or STAT464. Junior standing. Not open to students who have completed BIOM401 or BIOM601. Credit will be granted for only one of the following: BIOM401, BIOM402, or BIOM601. Statistical methods commonly used in human and veterinary medicine will be covered. Topics include nonparametric statistics, survival data, simple factorial arrangements of treatments, completely randomized, blocked and stratified clinical trials, analysis of variance, sample size issues, multiple 2x2 tables, prevention trials, case-control and cohort studies, logistic and Poisson regression models.

**BIOM 405 Computer Applications in Biometrics (1)** Two hours of laboratory per week. Prerequisite: BIOM402 or equivalent. An introduction to computer applications for data analysis. This is equivalent to the computer lab of 601 and is required for students that have taken BIOM 301 and BIOM402 and wish to go directly into BIOM602.

## BMGT – Business and Management

**BMGT 110 Introduction to Business and Management (3)** Not open to BMGT students who have completed 56 or more credit hours. All others may take it anytime. A survey of the field of business, including its environment, organization, overall and functional management and current issues and developments.

**BMGT 190 Introduction to Design and Quality (4)** Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: permission of College. Also offered as ENES190. Credit will be granted for only one of the following: BMGT190 or ENES190. Exposes engineering and business students to the principles of total quality, using experiential team-learning and technology-aided approaches. The first of four courses in total quality.

**BMGT 198 Special Topics in Business and Management (1-3)** For BMGT majors only. Repeatable to 6 credits if content differs. Introductory special topics in business and management.

**BMGT 201 Introduction to Business Computing (3)** Two hours of lecture and one hour of laboratory per week. Not open to computer science students. 24 semester hours. For BMGT majors only. Basic literacy course using common business computer-based applications. Considers the use of computing applications such as Microsoft Excel, Access and Powerpoint in problem solving.

**BMGT 210 Basic Accounting (3)** Prerequisite: Restricted to Non-BMGT Majors only. Credit will be granted for only one of the following: (BMGT210 or 220) or (BMGT210 or 221). Basic Accounting for Non-Business Majors; combines principles of financial and managerial accounting. Not open to BMGT majors. Credit will not be given for both BMGT210 and either BMGT220 or BMGT221.

**BMGT 220 Principles of Accounting I (3)** Basic theory and techniques of contemporary financial accounting. Includes the accounting cycle and the preparation of financial statements for single owner and partnership forms of business organizations operating as service companies or merchandisers.

**BMGT 221 Principles of Accounting II (3)** Prerequisite: BMGT220. Basic theory and techniques of accounting for managerial decision making. Involves the introduction of the corporation and manufacturing operations. Includes cost-volume-profit analysis and capital budgeting. Introduces the topics of income taxation and international accounting.

**BMGT 230 Business Statistics (3)** Prerequisite: MATH113 or MATH115 or placement in MATH220 or higher. Not open to students who have completed BMGT231, ENEE324, or STAT400. Credit will be granted for only one of the following: AREC484, BIOM301, BMGT230, CNEC400, ECON321, EDMS451, GEOG305, GV PT 422, PSYC 200, SOCY 201, URSP 350, or TEXT 400. Introductory course in probabilistic and statistical concepts including descriptive statistics, set-theoretic development of probability, the properties of discrete and continuous random variables, sampling theory, estimation, hypothesis testing, regression and decision theory and the application of these concepts to problem solving in business and the application of these concepts to problem solving in business and management. This course does not meet requirements for management science and statistics majors.

**BMGT 231 Statistical Models For Business (3)** Prerequisite: MATH141 or permission of department. Required for Operations & Quality Management and Information Systems-Business majors. Credit will be granted for only one of the following: BMGT231, ENEE324, ENME392, or STAT400. These courses are not interchangeable. Please consult requirements or an advisor for what is acceptable your program of study. An introductory course in statistical concepts, including probability from a naive set theory approach, random variables and their properties and the probability distributions of selected discrete and continuous random variables. The concepts of sampling and sampling distributions and the application of these concepts to estimation and hypothesis testing are included as are brief surveys of the regression and anova models.

## 174 Approved Courses

**BMGT 290 Methods for Measuring Quality (3)** Prerequisite: BMGT190 or ENES190. Also offered as ENES380. Provides engineering and business students an understanding of the need and use of measurement techniques that lead to continuous improvement. The second course of four courses in total quality.

**BMGT 298 Special Topics in Business and Management (1-3)** For BMGT majors only. Repeatable to 6 credits if content differs. Introductory special topics in business and management.

**BMGT 301 Introduction to Information Systems (3)** Three hours of lecture and one hour of discussion/recitation per week. CMSC majors will not receive credit for this course towards their upper level concentration in their CMSC major. All BMGT majors, including students who are a double major in CMSC, must complete BMGT301 for their BMGT degree.. For BMGT majors only. Comprehensive overview of information systems (IS), which explores the strategic and tactical nature of IS. The basic concepts in analyzing and designing information systems for business applications will be presented. Aspects of data management such as databases, data warehousing, data analysis, and data mining will be analyzed, and the basics of web page and web site design will be outlined. Students will also be introduced to modern information systems infrastructure such as telecommunications, networks, and information systems security. Knowledge of Excel or a similar spreadsheet tool.

**BMGT 302 Business Computer Application Programming (3)** Prerequisite: Proficiency in Microsoft Office, BMGT201, CMSC102, or CMSC103; or permission of department. Computer Science majors will not receive credit. For BMGT majors only. Considers characteristics of business data programming and common software development processes and practices. Covers the designing, writing, documenting and testing of an efficient, structured program in Visual Basic.

**BMGT 305 Survey of Business Information Systems and Technology (3)** For Information Systems-Business majors only. Computer Science majors will not receive credit. 53 semester hours. Introductory course for the decision and information science major. Covers the components of modern business information systems as well as the consequences of information technology on society and the environment.

**BMGT 310 Intermediate Accounting I (3)** Prerequisite: BMGT221. Comprehensive analysis of financial accounting topics related to financial statement preparation and external reporting.

**BMGT 311 Intermediate Accounting II (3)** Prerequisite: BMGT310. Continuation of BMGT310.

**BMGT 321 Managerial Accounting (3)** Prerequisite: BMGT221. A study of the basic concepts of product costing and cost analysis for management planning and control. Emphasis is placed on the role of the accountant in organizational management, analysis of cost behavior, standard cost budgeting, responsibility accounting and relevant costs for decision-making.

**BMGT 323 Taxation of Individuals (3)** Prerequisite: BMGT221. Federal taxation of individuals focusing on income, exclusions, deductions, depreciation, credits and capital transactions. Property coverage includes the tax consequences of sales and dispositions of investment and business assets. Both tax planning and compliance issues are covered.

**BMGT 326 Accounting Systems (3)** Prerequisites: BMGT201 and BMGT221. A study of accounting systems and computer and communications technology.

**BMGT 332 Operations Research For Management Decisions (3)** Prerequisite: BMGT230 or BMGT231; or equivalent. Surveys the philosophy, techniques and applications of operations research to managerial decision-making. Techniques covered include: linear programming, transportation and assignment models, Markov processes and inventory and queuing models. Emphasis is placed on formulating and solving decision problems in the functional areas of management.

**BMGT 340 Business Finance (3)** Prerequisites: BMGT221; and [BMGT230 or BMGT231]. Topics include: the principles and practices involved in the organization, financing and rehabilitation of business enterprises; the various types of securities and their use in raising funds, apportioning income, risk and control; intercorporate relations; and new developments. Emphasis on solution of problems of financial policy faced by management.

**BMGT 343 Investments (3)** Prerequisite: BMGT340. An introduction to financial investments. Topics include: securities and securities markets; investment risks, returns and constraints; portfolio policies; and institutional investment policies.

**BMGT 350 Marketing Principles and Organization (3)** Prerequisite: ECON200 or ECON205. An introduction to the concepts and principles of marketing including the marketing of service and nonprofit organizations. Provides an overview of all the concepts in marketing including relationship marketing, product development, pricing, promotion, marketing research, consumer behavior, international marketing, distribution and internal marketing to employees.

**BMGT 351 Direct Marketing (3)** Three hours of lecture per week. Prerequisite: BMGT350. For BMGT majors only. Planning, execution and evaluation of direct marketing strategy. Analysis of direct marketing programs in the consumer, business-to-business, and international markets. Advantages and disadvantages of direct mail, catalog, telephone, and Internet marketing will be discussed. The roles of marketing research, database marketing, and financial management in direct marketing are examined. Examples are drawn from the marketing of for-profit and non-profit organizations.

**BMGT 353 Retail Management (3)** Prerequisites: BMGT220; and BMGT350. Planning and implementing retail marketing strategy. Store and nonstore (catalog, Internet) retailing. Evaluation of how environmental trends in the consumer market, competition, the economy and technology affect retail strategy in the U.S. and global market.

**BMGT 357 Retailing and Marketing Internship (3-6)** Prerequisites: BMGT350 and permission of department. For BMGT majors only. Supervised work experience with a firm engaged in marketing goods or services. Students apply concepts learned in marketing classes and analyze the firm's organizational structure, environment and marketing strategy.

**BMGT 360 Human Resource Management (3)** The basic course in human resource management includes manpower planning, recruitment, selection, development, compensation and appraisal of employees. Explores the impact of scientific management and unionism on these functions.

**BMGT 361 Entrepreneurship: Starting and Managing the Entrepreneurial Venture (3)** For BMGT majors only. Not open to students who have completed BMGT261 or BMGT461. Credit will be granted for only one of the following: BMGT261, BMGT361, or BMGT461. Formerly BMGT 261. Focuses on the early development of a new venture. Topics include: idea-getting, opportunity recognition, feasibility studies, new venture financing and startup. Guests speakers and practicing entrepreneurs offer real world guidance. Restricted to students admitted to the Smith Entrepreneurship Fellows Program.

**BMGT 362 Labor Relations (3)** A study of the development and methods of organized groups in industry with reference to the settlement of labor disputes. An economic and legal analysis of labor union and employer association activities, arbitration, mediation and conciliation collective bargaining, trade agreements, strikes, boycotts, lockouts, company unions, employee representation and injunctions.

**BMGT 364 Management and Organization Theory (3)** The development of management and organization theory, nature of the management process and function and its future development. The role of the manager as an organizer and director, the communication process, goals and responsibilities.

**BMGT 365 Entrepreneurial Finance, and Private Equity (3)** Prerequisite: BMGT361 or BMGT461. Junior standing. Studies venture capital and private equity using a combination of cases, lectures and guest speakers. Addresses how venture capitalists provide capital to start-up firms in growing industries and how private equity markets provide capital to help established medium-sized firms (often family businesses) grow and restructure. Focuses on how financial, legal, and economic issues are dealt with in the financial contracts between venture capitalists and their limited partners and between capitalists (or other private equity investors) and the firms in which they invest.

**BMGT 366 Growth Strategies for Emerging Companies (3)** Prerequisite: BMGT361 or BMGT461. Junior standing. Offers practical management tools that are needed to build a new venture into a significant enterprise. The competencies, strategies and structures of successful high performance businesses are studied through cases, videos and guest lecturers. Topics include leadership, internal growth strategies, merger, acquisition and franchising.

**BMGT 367 Career Search Strategies in Business (1)** One hour of lecture and one hour of laboratory per week. For BMGT majors only. An overview and opportunity to practice job search skills critical to obtaining internships and full-time positions. Course will cover strategies for exploring career options, preparing job search materials, development of job search skills such as interviewing and networking. Students are encouraged to take this course in the sophomore or junior year.

**BMGT 370 Introduction to Transportation in Supply Chain Management (3)** An overview of transportation with an emphasis on freight from the perspective of both carriers and users. Explores the financial, economic and governmental drivers of transportation. Develops the characteristics of the freight modes and examines their roles as major components of logistics and supply chain management.

**BMGT 372 Introduction to Logistics and Supply Chain Management (3)** The study of logistics and supply chain management involving the movement and storage of supplies, work-in-progress and finished goods. Logistics cost trade-offs with the firm and between members of the supply chain are examined.

**BMGT 373 Logistics, Transportation, and Supply Chain Management Internship (3)** Prerequisite: permission of department. Involves supervised work experience in supply chain management, logistics and/or transportation. Students will be expected to relate course material to work experience in an analysis of a firm's operations.

**BMGT 380 Business Law I (3)** Legal aspects of business relationships. Examination of torts and business crimes, contracts and agency. The law of personal property and bailment relationships. Survey of public policy issues.

**BMGT 381 Business Law II (3)** Prerequisite: BMGT380 or permission of department. The Uniform Commercial Code, including sales, commercial paper, secured transactions, bulk sales and documents of title. The law of partnerships and corporations. Reorganization and liquidation under the bankruptcy laws. The law of real property, landlord and tenant relationships and decedents' estates.

**BMGT 385 Operations Management (3)** Studies the design, management and improvement of a firm's processes and systems for creation and delivery of products and services. Includes strategic and operational views of supply chain, product development, and capacity analysis, highlighting the competitive advantages that operations management can provide the firm.

**BMGT 386 General Business Internship (3)** Prerequisite: permission of department. For BMGT majors only. Supervised work experience in business. Students will be expected to relate course material to work experience in an analysis of a firm's operations.

**BMGT 390 Competing on Quality in a Global Economy (3)** Prerequisite: BMGT290 or ENES380. Also offered as ENES390. Examines strategic quality management in a globalized setting. Global marketing, international finance and cross cultural concepts will be emphasized. The third course of four courses in total quality.

**BMGT 392 Introduction to International Business Management (3)** Prerequisite: ECON200; or ECON205. A study of the domestic and foreign environmental factors affecting the international operations of U.S. business firms. The course also covers the administrative aspects of international marketing, finance and management.

**BMGT 398 Individual Study in Business and Management (1-3)** Prerequisite: permission of department. Repeatable to 6 credits.

**BMGT 402 Database Systems (3)** Prerequisite: BMGT301 or equivalent. Recommended: BMGT302. Introduction to basic concepts of database management systems. Relational databases, query languages and design will be covered. File-processing techniques are examined.

**BMGT 403 Systems Analysis and Design (3)** Prerequisite: BMGT301 or equivalent. Recommended: BMGT302. Techniques and tools applicable to the analysis and design of computer-based information systems. System life cycle, requirements analysis, logical design of databases and performance evaluation. Emphasis on case studies. Project required that involves the design, analysis and implementation of an information system.

**BMGT 405 Business Telecommunications (3)** Prerequisite: BMGT301 or equivalent. Concepts of business data communications and data processing. Application of these ideas in computer networks, including basic principles of telecommunications technology, computer network technology, data management in distributed database systems and management of the technical and functional components of telecommunications technology.

**BMGT 406 Electronic Commerce Application Development (3)** Prerequisite: BMGT302 and BMGT402. For BMGT majors only. Develops understanding of the fundamental principles of usability as they apply to electronic commerce applications. Aspects of website evaluation are examined. Course will also cover the design of usable business websites using current tools and techniques.

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**BMGT 407 Information Systems Projects (3)** Prerequisite: BMGT402 and BMGT403 For Information Systems-Business majors only. Senior standing. Senior capstone course for the decision and information sciences major. Collected knowledge from the DIS courses and application to significant problems of size and complexity. State-of-the-art research ideas and current business and industrial practices in information systems.

**BMGT 408 Special Topics in Decision and Information Technologies (3)** Prerequisite: permission of department (prerequisite may vary based on changing topics). Repeatable to 9 credits if content differs. Selected advanced topics in the various fields of study in decision and information technologies.

**BMGT 411 Ethics and Professionalism in Accounting (3)** Prerequisite: BMGT311. For accounting majors only. 86 semester hours. Analysis and discussion of issues relating to ethics and professionalism in accounting.

**BMGT 417 Taxation of Corporations, Partnerships and Estates (3)** Prerequisite: BMGT221. Federal taxation of corporations using the life-cycle approach-formation, operation, assessment, merger, reorganization and liquidation. Overviews of pass-through entities - partnerships and s-corporations - using the life-cycle approach, and the tax consequences of wealth transfers by individuals - gift and estate taxation. Both tax planning and compliance issues are addressed.

**BMGT 422 Auditing Theory and Practice (3)** Prerequisite: BMGT221. A study of the independent accountant's attest function, generally accepted auditing standards, compliance and substantive tests and report forms and opinions.

**BMGT 424 Advanced Accounting (3)** Prerequisite: BMGT311. Advanced accounting theory applied to specialized topics and current problems. Emphasis on consolidated statements and partnership accounting.

**BMGT 426 Advanced Managerial Accounting (3)** Prerequisite: BMGT321. Advanced cost accounting with emphasis on managerial aspects of internal record-keeping and control systems.

**BMGT 428 Special Topics in Accounting (3)** For Accounting majors only. Repeatable to 06 credits if content differs. Selected advanced topics in Accounting.

**BMGT 430 Linear Statistical Models in Business (3)** Prerequisite: BMGT230 or BMGT231 or permission of department. Model building involving an intensive study of the general linear stochastic model and the applications of this model to business problems. The model is derived in matrix form and this form is used to analyze both the regression and ANOVA formulations of the general linear model.

**BMGT 434 Introduction to Optimization (3)** Prerequisite: MATH220 or MATH140; or equivalent. Recommended: MATH221 or MATH141. For BMGT majors only. Introduces concepts and techniques of operations research to model and solve business decision problems, focusing on optimization and commercially available software tools. Models include linear programming, the transportation and assignment problems, network flow models, and non-linear programming. Emphasis is placed on analyzing business scenarios and formulating associated decision models.

**BMGT 435 Business Process Simulation (3)** Prerequisite: BMGT230 or BMGT231 or equivalent. For BMGT majors only. Develop and plan simulation studies, build simulation models with special purpose software, analyze and interpret the results. Extensive use of applications and real-world examples. The emphasis is on model formulation and the interpretation of results, rather than mathematical theory.

**BMGT 440 Advanced Financial Management (3)** Prerequisite: BMGT340. Analysis and discussion of cases and readings relating to financial decisions of the firm. The application of finance concepts to the solution of financial problems is emphasized.

**BMGT 443 Applied Equity Analysis and Portfolio Management (3)** Prerequisite: BMGT343. Study and application of the concepts, methods, models, and empirical findings to the analysis, valuation and selection of securities, especially common stock.

**BMGT 444 Futures and Options Contracts (3)** Prerequisite: BMGT343. Credit will be granted for only one of the following: BMGT444 and MATH424. The institutional features and economic rationale underlying markets in futures and options. Hedging, speculation, structure of futures prices, interest rate futures, efficiency in futures markets and stock and commodity options.

**BMGT 445 Banking and Financial Institutions (3)** Prerequisites: BMGT340. Recommended: ECON330. Analysis and discussion of cases and readings in commercial bank management. The loan function is emphasized; also the management of liquidity reserves, investments for income and source of funds. Bank objectives, functions, policies, organization, structure, services and regulation are considered.

**BMGT 446 International Finance (3)** Prerequisite: BMGT340. Financial management from the perspective of the multinational corporation. Topics covered include the organization and functions of foreign exchange and international capital markets, international capital budgeting, financing foreign trade and designing a global financing strategy. Emphasis of the course is on how to manage exchange and political risks while maximizing benefits from global opportunity sets faced by the firm.

**BMGT 447 Internship and Research in Finance (3)** Prerequisites: BMGT340 and BMGT343 (or 400 level finance elective); and core requirements in business and management; and permission of department. Recommended: finance major courses. For finance majors only. Supervised, sponsored internship in a corporation or financial institution. Analysis of approved research topic in corporate finance, investments or financial institutions/markets.

**BMGT 450 Integrated Marketing Communications (3)** Prerequisite: BMGT350. For BMGT majors only. Credit will be granted for only one of the following: BMGT354 or BMGT450. Formerly BMGT 354. In-depth study of coordinated marketing activities including advertising, sales promotion, Internet marketing, direct marketing and personal selling. Emphasizes strategic planning to effectively use these promotional tools to communicate with customers and meet marketing goals. Blends theory and current practice to provide managerial orientation.

**BMGT 451 Consumer Analysis (3)** Prerequisite: BMGT350. Recommended: PSYC100; and PSYC221. Not open to students who have completed CNEC437. Credit will be granted for only one of the following: BMGT451 or CNEC437. Identifying buyer behavior concepts relevant to a specific marketing problem so that appropriate marketing decisions can be made. Conceptual frameworks are drawn from psychology, sociology, economics, and other social sciences to aid in understanding the behavior of ultimate and industrial buyers.

**BMGT 452 Marketing Research Methods (3)** Prerequisites: BMGT230; and BMGT451. Focuses on aiding marketing decision-making through exploratory, descriptive and causal research. Develops student skills in evaluating and writing market research proposals, interpreting and analyzing subsequent reports and appraising their usefulness to managers; designing studies, including selection of data collection method, development of data collection instrument, sample design, collection and analysis of data and reporting the results.

**BMGT 454 International Marketing (3)** Prerequisites: BMGT350 plus one other marketing course. Marketing functions from the international executive's viewpoint, including coverage of international marketing policies relating to product adaptation, data collection and analysis, channels of distribution, pricing, communications and cost analysis. Consideration is given to the cultural, legal, financial and organizational aspects of international marketing.

**BMGT 455 Sales Management (3)** Prerequisite: BMGT350. The roles of the sales executive as a planner, manager of resources and marketing functions and recruiter, trainer, motivator and leader of field sales personnel. Techniques and sequence of problem analysis for selling and sales management decisions and to the practical framework in which these decisions take place. Teaching vehicles feature strong classroom interactions, cases, journal articles, research findings, guest sales managers, debates, and modern company practices.

**BMGT 457 Marketing Policies and Strategies (3)** Prerequisite: BMGT451. Corequisite: BMGT452. This capstone course ties together concepts from all the various marketing courses using the fundamentals of strategic market planning as the framework. Application of these principles is accomplished by analyzing and discussing cases and by playing a marketing strategy computer simulation game. Analysis of current business articles to understand the link between theory and real-world problem solving.

**BMGT 460 Human Resource Management: Analysis and Problems (3)** Prerequisite: BMGT360. Recommended: BMGT230. Research findings, special readings, case analysis, simulation and field investigations are used to develop a better understanding of personnel problems, alternative solutions and their practical ramifications.

**BMGT 461 Entrepreneurship (3)** Not open to students who have completed BMGT261 or BMGT361. Credit will be granted for only one of the following: BMGT261, BMGT361, or BMGT461. Process of creating new ventures, including evaluating the entrepreneurial team, the opportunity and the financing requirements. Skills, concepts, mental attitudes and knowledge relevant for starting a new business.

**BMGT 462 Employment Law for Business (3)** This course is restricted to BMGT majors with 72 hours completed. Legal framework of industrial relations with special emphasis on employment discrimination, i.e., wrongful termination, sex discrimination, sexual harassment, age discrimination, disability, etc.

**BMGT 463 Cross-cultural Challenges in Business (3)** For BMGT majors only. Examines in depth the nature of international cultural value-differences and their behavioral-related effects in the workplace. Topics include decision-making and leadership styles and reactions to various work assignments and reward structures.

**BMGT 464 Organizational Behavior (3)** Prerequisite: BMGT 364. An examination of research and theory concerning the forces which contribute to the behavior of organizational members. Topics covered include work group behavior, supervisory behavior, intergroup relations, employee goals and attitudes, communication problems, organizational change and organizational goals and design.

**BMGT 465 Business Plan For The New Venture (3)** Prerequisite: BMGT361 or BMGT461. Each student focuses on the production of a business plan that will be accepted for an annual business plan competition. Business plans of sufficient quality may be submitted to attract financing. Topics include a deep review of business construction and its derivative short forms.

**BMGT 466 Global Business Strategy (3)** For BMGT majors only. Focuses on the strategic challenges that directly result from and are associated with the globalization of industries and companies. Topics include drivers of industry globalization, difference between global and multi-domestic industry, global expansion strategies, sources of competitive advantage in a global context, and coordination of a company across a global network.

**BMGT 467 Undergraduate Seminar in Human Resource Management (3)** 86 semester hours. For BMGT majors only. Strategic human resource management, compensation and rewards and performance management skills. Guest lecturer presentations.

**BMGT 470 Advanced Transportation Management (3)** Prerequisite: BMGT370. An in-depth study of a wide range of transportation issues facing managers from the perspective of both carriers and users in the various modes and in multi-modal/intermodal settings. Current U.S. and international transportation issues, including strategies, financing, service, competitive aspects and governmental policies/promotion, are reviewed and analyzed in the context of supply chain management.

**BMGT 472 Advanced Logistics Operations (3)** Prerequisite: BMGT372. Analysis of the operational aspects of logistics management, including purchasing policies, transportation planning and inventory control. Attention is directed toward total logistics cost minimization and the establishment of a sustainable competitive advantage based on logistical activities.

**BMGT 475 Advanced Supply Chain Management Strategy and Technologies (3)** Prerequisite: BMGT372. Analysis of the strategic aspects of supply chain management. Emphasis on the creation of end-user value through supply chain cost reductions, service improvements or both. Attention is directed toward the enabling role of technology in support of strategy evaluation and implementation.

**BMGT 476 Applied Computer Models in Supply Chain Management (3)** Prerequisites: BMGT370 and BMGT372. Introduction to the expanding base of computer software in the field of supply chain management. Applications include: demand planning and forecasting, transportation planning, warehouse management systems and other relevant modules.

**BMGT 477 International Supply Chain Management (3)** The study of the importance of the supply chain management concept within an international arena. Coverage of the structure, service, pricing and competitive relationships among international carriers and transport intermediaries, documentation, location decisions, international sourcing and distribution and management of inventory throughout the international supply chain.

**BMGT 480 Legal Environment of Business (3)** Junior standing. Principal ideas in law stressing those relevant for the modern business executive with focus on legal reasoning as it has evolved in this country. Leading antitrust cases illustrating the reasoning process as well as the interplay of business, philosophy and the various conceptions of the nature of law which give direction to the process. Examination of contemporary legal problems and proposed solutions, especially those most likely to affect the business community.

**BMGT 482 Business and Government (3)** Prerequisite: ECON200; or ECON205. Focus is on the complex interrelationships between business and government. Explores areas in which business and government are allies (cooperative research and financing program) and adversaries (regulation). Emphasizes a strategic management approach by business to government involvement in economic affairs.

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**BMGT 484 Electronic Marketing (3)** Prerequisite: BMGT350. For BMGT majors only. Examines the process of developing, implementing and analyzing strategies for successfully marketing a variety of existing and potential products and services on the Internet. Special attention devoted to the tools and techniques unique to the electronic media.

**BMGT 485 Project Management (3)** Prerequisite: BMGT230 or BMGT231; or equivalent. 72 semester hours. For BMGT majors only. Modern project management techniques that are used by modern practicing professionals will be covered. Particular attention is given to the management of technology based systems and projects in a business enterprise. The topics covered include: defining project scope, alignment of projects with enterprise strategy, managing project cost, time and risks using tools such as CPM/PERT, and measuring project performance.

**BMGT 486 Total Quality Management (3)** Prerequisite: BMGT230 or equivalent. Total Quality Management and the synergy required between functions to obtain the customer's quality demands. Statistical tools which are mandatory in any successful quality effort.

**BMGT 487 Six Sigma Innovation (3)** Prerequisite: BMGT190H or ENES190H; and (BMGT230, BMGT231, STAT400 or ENME392). Six Sigma Innovation of products and processes via the Define-Measure-Analyze-Improve-Control (DMAIC) breakthrough improvement strategy is addressed. Emphasizes that quality and statistical tools and strategies of Six Sigma and requires their use in an applied business improvement project. Satisfactory completion of the course is equivalent to Six Sigma Red Belt certification representing content mastery and applications experience that exceeds the widely recognized and much in demand Six Sigma Green Belt certification.

**BMGT 490 The Total Quality Practicum (3)** Prerequisite: BMGT390 or ENES390. Also offered as ENES490. Credit will be granted for only one of the following: BMGT490 or ENES490. Capstone course for the four-course total quality program. Based on a major project undertaken by student teams in an industry environment emphasizing integrative aspects of total quality, each project will be supervised by a joint faculty/industry team with differing areas of expertise. Requires extensive out-of-class work.

**BMGT 493 Honors Study (3)** Prerequisite: permission of department. First semester of the senior year. The course is designed for honors students who have elected to conduct intensive study (independent or group). The student will work under the direct guidance of a faculty advisor and the Assistant Dean of Undergraduate Studies. They shall determine that the area of study is of a scope and intensity deserving of a candidate's attention. Formal written and/or oral reports on the study may be required by the faculty advisor.

**BMGT 494 Honors Study (3)** Prerequisite: BMGT493, and continued candidacy for honors in Business and Management; and permission of department. Second semester of the senior year. The student shall continue and complete the research initiated in BMGT 493, additional reports may be required at the discretion of the faculty advisor and Assistant Dean of Undergraduate Studies.

**BMGT 495 Business Policies (3)** Prerequisites: BMGT340; and BMGT350; and BMGT364. For BMGT majors only. A case study course where students apply what they have learned of general management principles and their specialized functional applications to the overall management function in the enterprise.

**BMGT 496 Business Ethics and Society (3)** Prerequisite: one course in BMGT; or permission of department. A study of the standards of business conduct, morals and values as well as the role of business in society with consideration of the sometimes conflicting interests of and claims on the firm and its objectives. Emphasizes a strategic approach by business to the management of its external environment.

**BMGT 498 Special Topics in Business and Management (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Special topics in business and management designed to meet the changing needs and interests of students and faculty.

### BSCI – Biological Sciences Program

**BSCI 103 The World of Biology (4)** Three hours of lecture and three hours of laboratory per week. Formerly: BIOL101 and BIOL102. Credit will be granted for only one of the following: BSCI103 or BSCI105. An introduction to modern biology for the non-science major. Major themes include molecular biology, cell biology, evolution and organismal biology. Relevance of study of biology to modern human life will be emphasized. Course not acceptable toward degree in College of Chemical and Life Sciences.

**BSCI 105 Principles of Biology I (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: placement in MATH110 or higher. For science majors. Credit will be granted for only one of the following: BSCI103/BIOL101 or BSCI105/BIOL105. Formerly BIOL 105. Basic principles of biology with special emphasis on cellular and molecular biology.

**BSCI 106 Principles of Biology II (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: MATH110 placement. For science majors. Formerly BIOL 106. Basic principles of biology with special emphasis on organismal, ecological and evolutionary biology.

**BSCI 120 Insects (3)** Two hours of lecture and one hour of discussion/recitation per week. Formerly ENTM 100. A survey of the major groups of insects, their natural history, and their relationships with humans and their environment. Course not acceptable toward major requirements in the College of Chemical and Life Sciences.

**BSCI 121 Beekeeping (2)** Formerly ENTM 111. First semester. A study of the life history, behavior and seasonal activities of the honeybee, its place in pollination of flowers with emphasis on plants of economic importance and bee lore in literature. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

**BSCI 122 Microbes and Society (4)** Three hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: BSCI122 or BSCI223. Formerly MICB 100. Introduction to the historical, societal and conceptual aspects of microbiology and biotechnology. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

**BSCI 124 Plant Biology for Non-Science Students (3)** For non-science majors only. Not open to students who have completed BSCI105/BIOL105. Formerly PBIO 100. A basic course in plant biology specifically designed for the non-science student. Emphasis is placed on an evolutionary and ecological approach to studying fundamental concepts and processes of plants, their place in the biosphere, the importance of plants to man, and the manner in which humans impact on plants and their environment. This course will not count toward graduation requirements for any student in the College of Chemistry and Life Sciences or the College of Agriculture and Natural Resources.

**BSCI 125 Plant Biology Laboratory (1)** Two hours of laboratory per week. Corequisite: BSCI124. For non-science majors only. Not open to students who have completed BSCI105. Credit will be granted for only one of the following: BSCI105 or BSCI125. Formerly PBIO 101. An introduction to the biology of plants with emphasis on the processes by which plants function, the diversity of plants, and the importance of plants to humans. This course will not count toward graduation requirements for any student in the College of Chemistry and Life Sciences or the College of Agriculture and Natural Resources. CORE Lab Science.

**BSCI 201 Human Anatomy and Physiology I (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI105 or equivalent. Formerly ZOOL 201. Anatomy and physiology of the skeletal, muscular, neural, endocrine, and sensory systems. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

**BSCI 202 Human Anatomy and Physiology II (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI201 or permission of department. Formerly ZOOL 202. Anatomy and physiology of the cardiovascular, respiratory, immune, digestive, urinary and reproductive systems. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

**BSCI 205 Environmental Science (3)** Formerly PBIO 235. Basic ecological principles as they relate to the ecological dilemmas of overpopulation, pollution, increasing consumption of natural resources, and deteriorating land use ethics facing mankind today. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

**BSCI 206 Chesapeake: A Living Resource (3)** Credit will be granted for only one of the following: BSCI206 or BSCI373. Formerly PBIO 255. The living resources of the Chesapeake Bay from an ecosystem perspective. Designed for non-science majors, it will acquaint students with the Bay's watershed, its physical environment, and its living organisms, with an emphasis on the connections between these factors. Understanding the relationships between physical, chemical and biological processes will equip students to comprehend and appreciate the remarkable productivity of our estuary, as well as provide them with the knowledge needed to protect the Bay. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

**BSCI 207 Principles of Biology III - Organismal Biology (3)** Prerequisite: BSCI105 and BSCI106. Pre- or corequisite: CHEM103 or CHEM131; or equivalent. Credit will be granted for only one of the following: BSCI207 or BSCI279D. The diversity, structure and function of organisms as understood from the perspective of their common physicochemical principles and unique evolutionary histories.

**BSCI 222 Principles of Genetics (4)** Three hours of lecture and two hours of discussion/recitation per week. Prerequisites: BSCI105, one year college chemistry. Credit will be granted for only one of the following: BSCI222/BIOL222 or HORT274. Formerly BIOL 222. Principles and mechanisms of heredity and gene expression. Considers plant, animal, and microbial organisms.

**BSCI 223 General Microbiology (4)** Two hours of lecture and four hours of laboratory per week. Prerequisite: BSCI105. Credit will be granted for only one of the following: BSCI122 or BSCI223. Formerly MICB 200. Fundamental concepts in morphology, physiology, genetics, immunology, ecology, and pathogenic microbiology. Applications of microbiology to medicine, the food industry and biotechnology.

**BSCI 224 Animal Diversity (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI106. Formerly ZOOL 210. Comparative study of the diversity of animal form and function, including analysis of structures and mechanisms which different organisms utilize to cope with similar requirements of life.

**BSCI 225 Introductory Plant Biology (4)** Prerequisite: BSCI105 or HORT100 or permission of department. Formerly PBIO 200. An evolutionary survey of plant life is presented with special emphasis on flowering plants. Particular attention is devoted to structure- function relationships necessary for carrying out life's processes, such as photosynthesis, metabolism, transport, protection, and development.

**BSCI 230 Cell Biology and Physiology (4)** Three hours of lecture and three hours of laboratory per week. Prerequisites: BSCI105 and CHEM103. Formerly ZOOL 211. Biochemical and physiological mechanisms underlying cellular function. Properties of cells which make life possible and mechanisms by which cells provide energy, reproduce, and regulate and integrate with each other and their environment.

**BSCI 258 College Park Scholars Internship (1-3)** For College Park Scholars - Life Sciences students only. Repeatable to 6 credits if content differs. Formerly BIOL 258. Credit to be determined by CPS Director. Must be completed by end of sophomore year. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

**BSCI 279 Supplemental Study (1-3)** Prerequisite: permission of department. Repeatable to 6 credits. Formerly ZOOL 299. Research or special study to complement a course taken previously which is not fully equivalent to current departmental requirements. Credit according to work done.

**BSCI 288 Internship (1-6)** Prerequisite: permission of department. Repeatable to 12 credits if content differs. Formerly BIOL 288. An individual experience arranged by the student with the instructor. Does not satisfy biology major requirements. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

**BSCI 289 Off-Campus Internship (1-3)** Prerequisite: permission of department. For LFSC majors only. Repeatable to 5 credits if content differs. Formerly BIOL 289. Elective credit for formally established off-campus research internship. Permission of Director of Outreach required. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

**BSCI 312 Eukaryotic Genetics Laboratory (2)** Three hours of laboratory and one hour of discussion/recitation per week. Prerequisite: BSCI222 or equivalent. Credit will be granted for only one of the following: BIOL322, ZOOL322, or BSCI312. Formerly ZOOL 322. Experiments using lower and higher eukaryotes will be done by the students. Exercises will apply the genetic concepts underlying Mendelian and chromosomal theory of heredity; gene-environment interactions and the induction and detection of mutations. Major emphasis will be on the analysis and interpretation of data as well as clarity and completeness of the laboratory records.

**BSCI 328 Special Topics in Entomology (1-4)** Repeatable to 6 credits if content differs. Formerly ENTM 328. Lectures, seminars, mini-courses and other special instruction in various entomological subjects.

**BSCI 329 Instructional Assistance Practicum (1-3)** Prerequisite: permission of department. Repeatable to 3 credits if content differs. Formerly ZOOL 329. Students serve as instructional assistants in selected undergraduate biology courses. Roles and responsibilities are determined on a course- specific basis and approved by the College Undergraduate Program Committee. Course not acceptable toward major requirements in the College of Chemistry and Life Sciences.

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**BSCI 337 Biology of Insects (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI106 or {PLSC100 and PLSC101}; or permission of department. Credit will be granted for only one of the following: BSCI227 or BSCI337. Formerly BSCI 227. An overview of the biology, evolution and diversity of insects and their relatives. Insect morphology, physiology, behavior and ecology; the impact of insects on humanity and the management of pest insect populations; assembly of an insect collection is required.

**BSCI 338 Special Topics in Biology (1-4)** Repeatable to 6 credits if content differs. Formerly ZOOL 328. Lectures, seminars, mini-courses and other special instruction in various biological subjects.

**BSCI 342 Biology of Reproduction (3)** Prerequisite: BSCI105 or permission of department. Also offered as WMST326. Credit will be granted for only one of the following: BSCI342 or WMST326. Formerly ZOOL 326. The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior, and menopause.

**BSCI 348 Special Topics in Cell Biology and Molecular Genetics (1-4)** Formerly MICB 388. Presentation and discussion of special subjects in the field of cell biology and molecular genetics. A maximum of three credit hours of BSCI 348 may be applied to major.

**BSCI 360 Principles of Animal Behavior (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisites: BSCI105 and BSCI106 and BSCI222. Formerly ZOOL 360. Study of animal behavior with emphasis on its evolution and function. Topics include genetic basis of behavior, communication, aggression, foraging, cooperation, mate selection, and relevance for conservation.

**BSCI 361 Principles of Ecology (4)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: BSCI106 and (MATH140 or MATH220). Formerly ZOOL 328N. Basic principles of population, community, and ecosystem ecology. Use of these principles to predict possible consequences of human-caused changes in the environment and to understand the level of uncertainty of those predictions.

**BSCI 362 Ecology of Marsh and Dune Vegetation (2)** Prerequisite: BSCI106. Formerly PBIO 455. An examination of the biology of higher plants in dune and marsh ecosystems.

**BSCI 363 The Biology of Conservation and Extinction (3)** Prerequisite: BSCI106. Formerly ZOOL 312. Ecology, evolutionary biology, and paleontology will be applied to the study of conservation, species invasions, and extinction.

**BSCI 366 Biodiversity Issues in Conservation Management (3)** Prerequisite: BSCI224 or BSCI225 or BSCI227 or permission of department. Formerly ENTM 313. How biological diversity affects the stability and economic viability of agriculture, urban landscapes, and other managed resources and what actions can be taken to reduce losses.

**BSCI 370 Principles of Evolution (3)** Prerequisite: BSCI106. Formerly ZOOL 328Q. Understanding evolutionary processes in a natural and human environment, including adaption; DNA sequence, protein, and genome evolution; evolution of developmental mechanisms; mechanisms of evolutionary change (mutation, natural selection, drift); epidemiology; coevolution and biological control; speciation; comparative methods; extinction and conservation; human evolution.

**BSCI 373 Natural History of the Chesapeake Bay (3)** Three lectures per week and at least one Saturday field trip. Prerequisite: a course in biological sciences or permission of department. Formerly ZOOL 381. Consideration of the major groups of organisms associated with the Chesapeake Bay and current issues that determine humans' present and future uses for the Chesapeake and its biota.

**BSCI 374 Chesapeake Bay Laboratory (2)** One hour of lecture, two hours of laboratory, and eight hours of fieldwork per week. Pre- or corequisite: BSCI373. Formerly ZOOL 382. A laboratory and field experience of the watershed and Chesapeake Bay biota. Laboratories will be used to identify the biota collected by students on Thursday and Saturday field trips to a wide variety of collecting sites available along the 200 mile length of the Chesapeake Bay.

**BSCI 375 Biological Oceanography (3)** Prerequisites: BSCI106 and BSCI224. Formerly ZOOL 375. Fundamentals of biological processes in the world's oceans; emphasizes ecology of marine organisms and how ocean chemistry and ocean circulation influence biological processes such as production, dispersal, and food chain dynamics.

**BSCI 378H Cell Biology and Molecular Genetics Department Honors Seminar (1)** Repeatable to 6 credits. Formerly MICB 388H. Required seminar for all students participating in departmental honors research program.

**BSCI 379 Cell Biology and Molecular Genetics Department Research (1-3)** Prerequisite: permission of department. Formerly MICB399/PBIO399. This course is arranged to provide qualified majors an opportunity to pursue research problems under the supervision of a member of the department.

**BSCI 379H Cell Biology and Molecular Genetics Department Honors Research (1-4)** Prerequisite: admission to departmental honors program. Repeatable to 8 credits if content differs. Formerly MICB 379. Student should consult program guidelines. Research project carried out under guidance of faculty advisor.

**BSCI 380 Comparative Bioinformatics (4)** Three hours of lecture and three hours of laboratory per week. Prerequisites: BSCI106 and BSCI222; and {MATH141 or MATH221}. Recommended: BSCI370. Credit will be granted for only one of the following: BSCI348S or BSCI380. Formerly BSCI 348S. Computational methods for study of biological sequence data in comparative biology and evolution. Analysis of genome content and organization. Database searching, pairwise and multiple sequence alignment, phylogenetic methods, pattern recognition, and functional inference.

**BSCI 389 Entomology Department Research (1-2)** Prerequisite: BSCI227/ENTM205 or permission of department. Formerly ENTM 399. Credit to be determined by the department. Should be taken during the junior year. Investigations of assigned entomological problems. No more than 4 credit hours of BSCI389 may be applied to the 120 credit hours needed for the Bachelor's degree.

**BSCI 389H Entomology Department Honors Research (1-2)**

**BSCI 390 Vertebrate Zoology (3)** Prerequisites: BSCI106 and BSCI224 or permission of department. Formerly ZOOL 390. An introduction to the natural history of vertebrates, their evolutionary history, patterns of geographic distribution, and systematics.

**BSCI 391 Vertebrate Zoology Laboratory (1)** Three hours of laboratory per week. Prerequisites: BSCI106 and BSCI224 or permission of department. Corequisite: BSCI390. Formerly ZOOL 391. Field trips to observe vertebrates and to institutions where scientific research on vertebrates is being conducted.

**BSCI 392 Biology of Extinct Animals (3)** Prerequisite: BSCI106. Credit will be granted for only one of the following: BSCI392 or ZOOL396. Formerly ZOOL 396. A survey of extinct animals that have few, if any, direct living descendants. The principles governing the functional design of animals will be used to infer life styles for extinct, and frequently bizarre, organisms.

**BSCI 393 Biology of Extinct Animals Laboratory (1)** Three hours of laboratory per week. Pre- or corequisite: BSCI392. Formerly: BSCI338W/ZOOL328W. Credit will be granted for only one of the following: BSCI392 or BSCI338W or ZOOL328W. An overview of the techniques used in paleobiological reconstructions of extinct animals.

**BSCI 394 Vertebrate Form and Function (3)** Prerequisites: BSCI105 and BSCI106 and (BSCI224 or BSCI230). Formerly ZOOL 328F. Comparative functional anatomy of vertebrates in the context of adaptation to their environments. The vertebrate body and its systems will be considered in terms of structure, physiology, evolution, and embryonic development.

**BSCI 398H Biology Department Honors Seminar (1)** Prerequisite: permission of department. Formerly ZOOL 308H. Required seminar for all students participating in departmental honors research program.

**BSCI 399 Biology Department Research (1-3)** Prerequisite: minimum G.P.A. of 3.0 and permission of department. Repeatable to 8 credits if content differs. Formerly ZOOL 319. Research and/or integrated reading in biology under the direction and close supervision of a member of the faculty.

**BSCI 399H Biology Department Honors Research (1-2)** Prerequisite: participation in the Biology Department Honors Program. Repeatable to 8 credits if content differs. Formerly ZOOL 318H. A laboratory research problem; required each semester during honors participation and culminating in an honors thesis.

**BSCI 410 Molecular Genetics (3)** Prerequisites: BSCI222 ( or equivalent ) and CHEM233 or (CHEM231 and CHEM232). Formerly ZOOL 446. An advanced genetics course emphasizing the molecular basis of gene structure and function in the context of modern approaches to the genetics of humans and model organisms.

**BSCI 411 Plant Genetics and Molecular Biology (3)** Prerequisite: BSCI222. Junior standing. Formerly PBIO 405. The basic principles of genetic analysis and molecular biology of gene structure, expression, and manipulation.

**BSCI 412 Microbial Genetics (4)** Two hours of lecture and six hours of laboratory per week. Prerequisites: BSCI223 and BSCI222. Formerly MICB 485. A laboratory/lecture based course that covers the fundamentals of mutation, mobile genetic elements and transmission genetics of microbial organisms using both classical and molecular approaches.

**BSCI 413 Recombinant DNA (3)** Prerequisites: (BSCI230 or BSCI223) and BSCI222. Formerly ZOOL 452. An advanced course presenting the tools and procedures of genetic engineering. Theory and practical applications of recombinant DNA techniques to understanding eukaryotic gene structure and expression.

**BSCI 414 Recombinant DNA Laboratory (3)** Prerequisite: BSCI222. Formerly MICB 453. An advanced course offering hands-on experience in performing recombinant DNA experiments. All current molecular biology techniques used for cloning prokaryotic genes, analyzing the gene products, and modifying the genes will be performed. Techniques include isolation of DNA, use of restriction enzymes; cloning procedures, PCR analysis, and Southern hybridizations. Lecture material focuses on interpretation of results generated in the laboratory.

**BSCI 415 Molecular Genetics Laboratory (3)** Six hours of laboratory per week. Pre- or corequisite: BSCI410. Junior standing. Credit will be granted for only one of the following: BSCI348G or BSCI415. Formerly BSCI 348G. Problem solving laboratory organized around extended projects that employ different approaches toward linking gene and function.

**BSCI 416 Biology of the Human Genome (3)** Prerequisite: BSCI222. Recommended: BSCI230. Formerly ZOOL 417. New approaches to studying human genetics and its application to basic biology and medicine. New medical treatments and genetic screening. Ethical, economic, and moral questions of availability, cost, and confidentiality.

**BSCI 417 Microbial Pathogenesis (3)** Prerequisite: BSCI222 and BSCI223. Junior standing. Credit will be granted for only one of the following: BSCI348M or BSCI417. Formerly BSCI 348M. Current research in microbial pathogenesis and the molecular and cellular basis of bacterial disease. Comprehensive overview of the molecular basis of pathogenesis with a focus on model microbial systems to illustrate mechanisms of disease pathogenesis. Topics covered: how microorganisms attach to and enter cells; how host cells are damaged by microbial products; how the host responds to invasion; and host-pathogen evolution.

**BSCI 420 Cell Biology Lectures (3)** Prerequisites: BSCI230 and BSCI222 and CHEM233. Credit will be granted for only one of the following: BSCI420 or BSCI421. Formerly ZOOL 410. Molecular and biochemical bases of cellular organization and function in eukaryotes.

**BSCI 421 Cell Biology (4)** Three hours of lecture and four hours of laboratory per week. Prerequisites: BSCI230 and BSCI222 and CHEM233. Formerly: PBIO400 and ZOOL411. Credit will be granted for only one of the following: BSCI420 or BSCI421. Molecular and biochemical bases of cellular organization and function in eukaryotes.

**BSCI 422 Principles of Immunology (3)** Prerequisites: BSCI222 and BSCI223. Recommended: BSCI230. Junior or Senior standing. Formerly MICB 454. The immune system in health and disease. Presentation and analysis of the cellular and molecular processes that comprise the immune system.

**BSCI 423 Immunology Laboratory (2)** Six hours of laboratory per week. Prerequisites: BSCI222 and BSCI223. Corequisite: BSCI422. Junior or senior standing. Formerly MICB 455. Current techniques for assessment of immune status and evaluation of the immune response, including monoclonal antibody production, Western blotting, cytokine assays, ELISA and flow cytometry.

**BSCI 424 Pathogenic Microbiology (4)** per week. Prerequisite: BSCI223. Formerly MICB 440. The role of bacteria and fungi in the diseases of humans with emphasis upon the differentiation and culture of microorganisms, types of disease, modes of disease transmission, prophylactic, therapeutic, and epidemiological aspects.

**BSCI 425 Epidemiology and Public Health (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: BSCI223. Formerly MICB 420. History, characteristic features of epidemiology; the important responsibilities of public health; vital statistics.

**BSCI 426 Membrane Biophysics (3)** Prerequisites: BSCI230; and (PHYS122 or PHYS142) and (MATH140 or MATH220). Formerly ZOOL 413. Quantitative aspects of biology and the use of mathematical descriptions of biological phenomena. The focus will be on membrane structure, transport, and bioenergetics.



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**BSCI 427 Principles of Microscopy (2)** Prerequisite: BSCI421. Formerly PBI0 430. An introduction to optical principles that underlie light and electron microscopic image formation. Brightfield, darkfield, phase contrast, differential interference contrast, fluorescence and polarized light microscopy. Comparison of light and electron microscopy. The application of these techniques to problems in biological research.

**BSCI 430 Developmental Biology (3)** Prerequisites: BSCI230 and BSCI222. Formerly Z00L 430. Structural, functional and regulatory events and mechanisms that operate during development to produce an integrated, multicellular organism composed of a multitude of differentiated cell types.

**BSCI 433 Biology of Cancer (3)** Prerequisites: (BSCI230 and BSCI222) or permission of department. Formerly Z00L 416. Causes and consequences of neoplastic transformations at the biochemical and cellular levels.

**BSCI 434 Mammalian Histology (4)** Two hours of lecture and six hours of laboratory per week. Prerequisites: BSCI230 and BSCI440; or permission of department. Formerly Z00L 495. A study of the microscopic anatomy, ultrastructure and histophysiology of tissues and organs of mammals.

**BSCI 436 Drug Action and Design (3)** Prerequisite: CHEM243 or permission of department. Junior standing. Formerly MICB 443. Introductory pharmacology with an emphasis on "magic bullets", novel therapies, and drug design.

**BSCI 437 General Virology (3)** Prerequisite: BSCI222 or permission of department. Junior standing. Formerly MICB 460. Discussion of the physical and chemical nature of viruses, virus cultivation and assay methods, virus replication, viral diseases with emphasis on the oncogenic viruses, viral genetics, and characteristics of the major virus groups.

**BSCI 440 Mammalian Physiology (4)** Three hours of lecture and two hours of discussion/recitation per week. Prerequisites: BSCI230 and CHEM233 or permission of department. Formerly Z00L 422. A study of the cardiovascular, hemopoietic, gastrointestinal, renal and respiratory systems. Chemical and endocrine regulation of physiological functions in mammals. Course does not count as an upper level lab for BIOL majors (see BSCI441).

**BSCI 441 Mammalian Physiology Laboratory (2)** Four hours of laboratory per week. Corequisite: BSCI440. Formerly Z00L 423. Laboratory exercises in experimental mammalian physiology.

**BSCI 442 Plant Physiology (4)** Three hours of lecture and three hours of laboratory per week. Prerequisites: BSCI105 and CHEM233 or (CHEM231 and CHEM232). Formerly PBI0 420. A survey of the general physiological activities of plants.

**BSCI 443 Microbial Physiology (3)** Prerequisite: BSCI223. Pre- or corequisite: BCHM462. Formerly MICB 470. Microbial cellular and population growth. Fermentation metabolism, physiology of anaerobiosis, and energy conservation and transformation in bacterial membranes. Efficiency of energy utilization for growth. Membrane structure and transport. Bacterial chemotaxis. Regulation of bacterial chromosome replication, RNA and protein synthesis. Control of metabolic pathways.

**BSCI 444 Neurophysiology Lectures (3)** Prerequisites: BSCI230 and CHEM233 and PHYS122. Credit will be granted for only one of the following: BSCI444 or BSCI445. Formerly Z00L 420. The physiology of nerves, muscles, and sensory receptors and aspects of central nervous system physiology.

**BSCI 445 Neurophysiology (4)** Three hours of lecture and three hours of laboratory per week. Prerequisites: BSCI230 and CHEM233 and PHYS122. Credit will be granted for only one of the following: BSCI444 or BSCI445. Formerly Z00L 421. The physiology of nerves, muscles and sensory receptors and aspects of central nervous system physiology.

**BSCI 446 Neural Systems (3)** Prerequisite: BSCI230. Formerly Z00L 402. Neural development, followed by sensory, motor and integrative system organization in the central nervous system.

**BSCI 447 General Endocrinology (3)** Prerequisites: BSCI230 and CHEM233 and CHEM243. Formerly Z00L 426. Functions and the functioning of the endocrine glands of animals with special reference to the vertebrates.

**BSCI 451 Physical Chemistry for Biologists (3)** Prerequisite: BSCI230 or equivalent. Formerly Z00L 328S. Mechanistic and quantitative aspects of chemical and physical processes, including diffusion, ligand-receptor binding, DNA melting, sedimentation, redox reactions, kinetics, fluorescence, osmosis, and electrophoresis.

**BSCI 460 Plant Ecology (3)** Prerequisite: BSCI106. Formerly PBI0 440. The dynamics of populations as affected by environmental factors with special emphasis on the structure and composition of natural plant communities, both terrestrial and aquatic.

**BSCI 461 Plant Ecology Laboratory (2)** Three hours of laboratory per week. Pre- or corequisite: BSCI460. Formerly PBI0 441. Two or three field trips per semester. The application of field and experimental methods to the qualitative and quantitative study of vegetation and ecosystems.

**BSCI 462 Population Ecology (3)** Prerequisites: BSCI106 and MATH220. Formerly Z00L 470. Theory of population growth and regulation, life tables, and theory of competition and predation, evolution in ecological settings, community structure and dynamics.

**BSCI 463 Laboratory and Field Ecology (2)** Four hours of laboratory and field work per week. Pre- or corequisites: BSCI462 and a course in statistics. Formerly Z00L 471. Laboratory and field exercises involving problems of contemporary ecological interest; population density regulation, community structure, and spatial pattern diversity in both terrestrial and aquatic systems.

**BSCI 464 Microbial Ecology (3)** Prerequisites: BSCI223; and CHEM243 or CHEM245. Formerly MICB 480. Interaction of microorganisms with the environment, other microorganisms and with higher organisms. Roles of microorganisms in the biosphere. Microorganisms and current environmental problems.

**BSCI 465 Behavioral Ecology (3)** Prerequisites: BSCI106 and (BSCI222 or BSCI224). Formerly Z00L 465. How natural and social environments shape individual behavior. The influence of evolution on patterns of individual adaptation. Use of the evolutionary paradigm to investigate specific problems in animal and human behavior.

**BSCI 467 Freshwater Biology (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI227 or permission of department. Formerly ENTM 482. Biology and ecology of freshwater invertebrates in lotic and lentic habitats, their adaptation to aquatic life, their function in aquatic ecosystems, and their relationship to environmental deterioration. Laboratory will include field trips, demonstrations, and identifications.

**BSCI 470 Evolutionary Mechanisms (4)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: BSCI370 or permission of instructor. Credit will be granted for only one of the following: BSCI 470 or Z00L440. Formerly Z00L 440. Concepts and experimental tools for understanding the process of evolution, including how genetic and ecological factors combine to produce adaptive evolution, measuring genetic variability and natural selection in contemporary populations, predicting evolutionary possibilities and understanding evolutionary constraints.

**BSCI 471 Molecular Evolution (3)** Prerequisite: BSCI222 or permission of department. Formerly Z00L 441. Patterns of DNA sequence variation within and between species, caused by nucleotide changes and the movement of transposable elements. Theories of molecular evolution, such as the neutral theory. Molecular clock' hypothesis: its importance as a practical empirical tool in molecular genetics and systematics and its theoretical foundation.

**BSCI 472 Evolutionary Biology of Plants (3)** Prerequisites: BSCI106 and BSCI222. Formerly PBI0 445. Evolution in plant populations. The pace, pattern, and mechanisms of evolution will be discussed within a genetic and ecological framework. Some emphasis will be placed on processes that are unique to the evolution of plants.

**BSCI 473 Marine Ecology (3)** Prerequisite: BSCI224. Formerly Z00 473. Courses in evolution and animal behavior are strongly recommended. A detailed analysis of the evolutionary ecology of marine invertebrates; emphasis on testing of theories and on current literature.

**BSCI 474 Mathematical Biology (4)** Three hours of lecture and three hours of laboratory per week. Prerequisites: MATH220 and MATH221. Formerly Z00L 425. Mathematical methods for analyzing deterministic and stochastic biological processes from a variety of areas (including population and evolutionary biology, neurobiology, physiology and morphogenesis). Qualitative aspects of dynamical systems which are usually given as difference or differential equations. The computer program Mathematica will be used to obtain the numerical solutions of these equations.

**BSCI 480 Arthropod Form and Function (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI227 or permission of department. Formerly ENTM 423. Survey of the morphological, systematic and physiological diversity of the phylum Arthropoda.

**BSCI 481 Insect Diversity and Classification (4)** One hour of lecture and six hours of laboratory per week. Prerequisite: BSCI227 or permission of department. Formerly ENTM 424. The techniques of collecting insects in the field and their classification into the latest hierarchical scheme. Field trips will visit habitats throughout the state. An insect collection is required.

**BSCI 483 Medical and Veterinary Entomology (4)** Three hours of lecture and two hours of laboratory per week. Prerequisite: BSCI227 or permission of department. Formerly ENTM 472. A study of the morphology, taxonomy, biology and control of the arthropod parasites and disease vectors of man and animals. The ecology and behavior of vectors in relation to disease transmission will be emphasized.

**BSCI 485 Protozoology (4)** Two hours of lecture and six hours of laboratory. Prerequisite: one year of biology. Formerly Z00L 472. Basic conceptual treatment of free-living and parasitic protozoan functional morphology, life history, and systematics. The laboratory will stress observations of protozoa, living and stained, collected from diverse habits.

**BSCI 488 Summer Biology Institutes (1-8)** Prerequisite: permission of department. Formerly: BIOL488, BIOL489, and BIOL490. Repeatable to 12 credits if content differs.

**BSCI 490 Plant Structure (4)** Two hours of lecture and four hours of laboratory per week. Prerequisite: BSCI105. Formerly PBI0 425. A survey of the basic structural features of vascular plants, including subcellular organelles, cells, tissues, and organs. Emphasis on structural phenomena as they relate to physiological processes of agricultural importance.

**BSCI 493 Medicinal and Poisonous Plants (3)** Two hours of lecture and two hours of discussion/recitation per week. Prerequisites: BSCI105 and CHEM233 or 4 credit hours of biological sciences. Formerly PBI0 485. A study of plants important to humans that have medicinal or poisonous properties. Emphasis on plant source, plant description, the active agent and its beneficial or detrimental physiological action and effects.

**BSCI 494 Animal-Plant Interactions (3)** Prerequisites: BSCI106 and (BSCI227, or BSCI224, or permission of department). Credit will be granted for only one of the following: BSCI494 or ENTM400. Formerly ENTM 400. Theoretical, conceptual and applied aspects of the ecological interactions between plants and animals.

**BSCI 495 Animal-Plant Interactions Laboratory (1)** Two hours of laboratory per week. Pre- or corequisite: BSCI494. Credit will be granted for only one of the following: BSCI495 or ENTM 401. Formerly ENTM 401. Guided independent research on animal-plant ecological interactions.

**BSCI 497 Insect Pests of Ornamentals and Turf (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: BSCI227 or permission of instructor. Also offered as ENTM497. Credit will be granted for only one of the following: BSCI497, ENTM453, or ENTM497. Formerly ENTM 453. The recognition, biology and management of insects and mites injurious to ornamental shrubs, trees, greenhouse crops, and turf. Emphasis on Integrated Pest Management (IPM).

### BSOS – Behavioral and Social Sciences

**BSOS 181 Civicus Student and the University (1)** Freshman standing. Knowledge and skills designed to utilize CIVICUS to enhance the college experience and preparation for civic engagement.

**BSOS 182 Civicus and Service-Learning (1)** Prerequisite: BSOS181, and BSOS191. Corequisite: SOCY105. Open only to Civicus students. Students will examine domestic societal issues and their national, regional, and local dimensions from political, economic, and policy perspectives. Students will work with local direct service non-profit organizations.

**BSOS 188 Selected Topics in the Behavioral and Social Sciences (1-3)** Repeatable to 6 credits if content differs. Not open to students who have completed EDCP108P. Credit will be granted for only one of the following: EDCP108O or BSOS188A. Introductory selected topics course dealing with interdisciplinary issues related to the social sciences.

**BSOS 191 Introduction to Civicus (3)** 3 semester hours. An introduction to the social and historical foundations of a civil society. An examination of the roles of individuals, groups, social institutions and community services.

**BSOS 288 Special Topics in Behavioral and Social Sciences (1-3)** Repeatable to 6 credits if content differs. Introductory special topics course focusing on an interdisciplinary topic related to behavioral and social sciences.

**BSOS 301 Leadership in a Multicultural Society (3)** Prerequisites: SOCY105, BSOS181, and BSOS191. Sophomore standing. A study and application of skills, historical context, theories, and concepts for constructive leadership in a pluralistic, multicultural, and diverse society. Social science methodologies and theories will provide the structure for the study of contemporary social problems, civil society issues, and leadership practices.

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**BSOS 302 Civicus Capstone (3)** Prerequisite: BSOS301. Sophomore standing. Capstone course required for CIVICUS citation. Supervised internship, community service, or research project on civil society topic. Application and continued study of skills and concepts, grounded in the social sciences, relevant to understanding and effectively dealing with contemporary social issues.

**BSOS 308 Contemporary Issues: Interdisciplinary Approaches (3)** Repeatable to 6 credits if content differs. An interdisciplinary analysis of current public policy issues of international, national and community import. Senior standing recommended.

**BSOS 309 Civicus Seminar (1)** Repeatable to 5 credits if content differs. Review and analysis of contemporary social issues.

**BSOS 333 Information Technology & Society (3)** Also offered as GVPT333. Credit will be granted for only one of the following: BSOS333 or GVPT333. Multi-disciplinary course utilizes a collaborative research model approach to focus on the influences of information and communication technologies on the way we live, work, learn, and relate to each other and to our community. Given the collaborative nature of the course, students may not drop after the first four weeks of class.

**BSOS 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**BSOS 388 Behavioral and Social Sciences Special Topics (1-3)** Repeatable to 6 credits if content differs. Advanced special topics course focusing on an interdisciplinary topic related to the Behavioral and Social Sciences.

**BSOS 399 Directed Study in Behavioral and Social Sciences (1-6)** Prerequisite: permission of department. Guidance for the advanced student capable of interdisciplinary study on special projects under the supervision of the Assistant Dean for Student Affairs.

### CCJS – Criminology and Criminal Justice

**CCJS 100 Introduction to Criminal Justice (3)** Formerly CJUS 100. Introduction to the administration of criminal justice in a democratic society, with emphasis on the theoretical and historical development of law enforcement. The principles of organization and administration for law enforcement; functions and specific activities; planning and research; public relations; personnel and training; inspection and control; direction; policy formulation.

**CCJS 105 Introduction to Criminology (3)** Formerly CRIM 220. Criminal behavior and the methods of its study; causation; typologies of criminal acts and offenders; punishment, correction and incapacitation; prevention of crime.

**CCJS 188 Topics in Criminology and Criminal Justice (3)** Prerequisite: CCJS100 or CCJS105. Repeatable to 6 credits if content differs. Contemporary and emerging crimes and the response to them by criminal justice agencies. Emphasis is on the emergence of new forms of crimes or criminals.

**CCJS 200 Statistics for Criminology and Criminal Justice (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisites: MATH111 with a grade of C or higher. Freshman standing. Introduction to descriptive and inferential statistics, graphical techniques, and the computer analysis of criminology and criminal justice data. Basic procedures of hypothesis testing, correlation and regression analysis, and the analysis of continuous and binary dependent variables. Emphasis upon the examination of research problems and issues in criminology and criminal justice.

**CCJS 230 Criminal Law in Action (3)** Prerequisite: CCJS100. Freshman standing. Law as one of the methods of social control. Criminal law: its nature, sources and types; theories and historical developments. Behavioral and legal aspects of criminal acts. Classification and analysis of selected criminal offenses.

**CCJS 234 Law of Criminal Investigation (3)** Prerequisite: CCJS230. General principles and theories of criminal procedure. Due process. Arrest, search and seizure. Recent developments. Study and evaluation of evidence and proof.

**CCJS 288 Special Topics in Law and Justice (3)** Prerequisites: CCJS105 and CCJS230. Repeatable to 6 credits if content differs. An analysis of recent developments in criminal law and their implications for criminal justice systems and research. Focus will be on Supreme Court decisions and legislative initiatives.

**CCJS 300 Criminological and Criminal Justice Research Methods (3)** Prerequisites: CCJS100 and CCJS105; and one of the following: CCJS200 or SOCY201 or PSYC200 or ECON321 or BMGT230. Introduction to the formulation of research questions covering crime and justice, research designs, data collection, and interpretation and reporting in criminological and justice-system settings.

**CCJS 320 Introduction to Criminalistics (3)** Prerequisite: CCJS234. An introduction to modern methods used in the detection, investigation and solution of crimes. Practical analysis of evidence in a crime laboratory, including fingerprints and other impressions, firearms ID and ballistics, hairs and fibers, document examination, and use of polygraph.

**CCJS 330 Contemporary Criminological Issues (3)** Prerequisite: CCJS105. Career criminals, prison overcrowding, prediction, ecological studies of crime, family and delinquency and similar criminological problems. enforcement procedures for civil law and similar legal problems. Admissibility of evidence. Representation. Indigent's right to counsel.

**CCJS 331 Contemporary Legal Policy Issues (3)** Prerequisites: CCJS230; and CCJS234 or equivalent. In-depth examination of selected topics. Criminal responsibility. Socio-legal policy alternatives with regard to deviance. Law enforcement procedures for civil law and similar legal problems. Admissibility of evidence. Representation. Indigent's right to counsel.

**CCJS 340 Concepts of Law Enforcement Administration (3)** Prerequisite: CCJS100 or equivalent. An introduction to concepts of organization and management as these relate to law enforcement. Principles of structure, process, policy and procedure, communication and authority, division of work and organizational controls. Human element in the organization. Informal interaction and bureaucracy.

**CCJS 350 Juvenile Delinquency (3)** Prerequisite: CCJS105. Juvenile delinquency in relation to the general problem of crime; analysis of factors underlying juvenile delinquency; treatment and prevention; organization and social responsibility of law enforcement.

**CCJS 352 Drugs and Crime (3)** Prerequisite: CCJS100. An analysis of the role of criminal justice in the control of drug use and abuse.

**CCJS 357 Industrial and Retail Security Administration (3)** Prerequisite: CCJS100 or permission of department. The origins of contemporary private security systems. Organization and management of industrial and retail protective units.

**CCJS 359 Field Training in Criminology and Corrections (1-6)** Prerequisite: six credits in criminology and permission of department. Repeatable to 6 credits. Supervised field training in public or private social agencies. Group meetings, individual conferences and written program reports.

**CCJS 360 Victimology (3)** Prerequisite: CCJS105. Overview of the history and theory of victimology. Analysis of victimization patterns with special emphasis on types of victims and crimes. The interaction between victims of crime and the criminal justice system with respect to the role of the victim and the services offered to the victim.

**CCJS 370 Race, Crime and Criminal Justice (3)** Prerequisite: CCJS100 or equivalent. Role and treatment of racial/ethnic minorities in the criminal justice system. Course will provide students with historical and theoretical framework for understanding this dynamic.

**CCJS 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**CCJS 388 Independent Reading Course in Criminology and Criminal Justice (3)** Prerequisites: CCJS100 and CCJS105. For honor students only. Designed for the needs of honor students in criminology and criminal justice.

**CCJS 389 Independent Research in Criminology and Criminal Justice (3)** Prerequisite: CCJS105. For honor students only. Designed for the needs of honor students in criminology and criminal justice.

**CCJS 398 Law Enforcement Field Training (1-6)** Prerequisite: 6 credits of CCJS; and permission of department. Repeatable to 6 credits. Supervised, structured and focused field training in law enforcement agencies.

**CCJS 399 Independent Study in Criminology and Criminal Justice (1-3)** Prerequisites: 12 credits in criminology and criminal justice and permission of department. Repeatable to 6 credits. Integrated reading or research under direction and supervision of a faculty member.

**CCJS 400 Criminal Courts (3)** Prerequisites: CCJS100 or permission of department; and CCJS300. Criminal courts in the United States at all levels; judges, prosecutors, defenders, clerks, court administrators, and the nature of their jobs; problems facing courts and prosecutors today and problems of administration; reforms.

**CCJS 432 Law of Corrections (3)** Prerequisites: CCJS230 or CCJS234; and CCJS105; and CCJS300. A review of the law of criminal corrections from sentencing to final release or release on parole. Probation, punishments, special treatments for special offenders, parole and pardon, and the prisoner's civil rights are also examined.

**CCJS 444 Advanced Law Enforcement Administration (3)** Prerequisites: CCJS340 or permission of department. The structuring of manpower, material, and systems to accomplish the major goals of social control. Personnel and systems management. Political controls and limitations on authority and jurisdiction.

**CCJS 451 Crime and Delinquency Prevention (3)** Prerequisites: CCJS105 or CCJS350 or permission of department; and CCJS300. Methods and programs in prevention of crime and delinquency.

**CCJS 452 Treatment of Criminals and Delinquents (3)** Prerequisites: CCJS105 or CCJS350 or permission of department; and CCJS300. Processes and methods used to modify criminal and delinquent behavior.

**CCJS 453 White Collar and Organized Crime (3)** Prerequisites: CCJS105 or CCJS350; and CCJS300. Definition, detection, prosecution, sentencing and impact of white collar and organized crime. Special consideration given to the role of federal law and enforcement practices.

**CCJS 454 Contemporary Criminological Theory (3)** Prerequisites: CCJS105; and CCJS300; and CCJS350. Brief historical overview of criminological theory up to the 50's. Deviance. Labeling. Typologies. Most recent research in criminalistic subcultures and middle class delinquency. Recent proposals for "decriminalization".

**CCJS 455 Dynamics of Planned Change in Criminal Justice I (3)** Prerequisite: CCJS300 and permission of department. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on the development of innovative ideas using a research and development approach to change.

**CCJS 456 Dynamics of Planned Change in Criminal Justice II (3)** Prerequisite: CCJS455 or permission of department. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on change strategies and tactics which are appropriate for criminal justice personnel in entry level positions.

**CCJS 457 Comparative Criminology and Criminal Justice (3)** Prerequisites: CCJS105 or CCJS350; and CCJS300. Comparison of law and criminal justice systems in different countries. Special emphasis on the methods of comparative legal analysis, international cooperation in criminal justice, and crime and development.

**CCJS 461 Psychology of Criminal Behavior (3)** Prerequisites: CCJS105 or equivalent; and CCJS300; and PSYC330 or PSYC353. Biological, environmental, and personality factors which influence criminal behaviors. Biophysiology and crime, stress and crime, maladjustment patterns, psychoses, personality disorders, aggression and violent crime, sex-motivated crime and sexual deviations, alcohol and drug abuse, and criminal behavior.

**CCJS 462 Special Problems in Security Administration (3)** Prerequisites: CCJS300 and CCJS357. An advanced course for students desiring to focus on specific concerns in the study of private security organizations; business intelligence and espionage; vulnerability and criticality analyses in physical security; transportation, banking, hospital and military security problems; uniformed security forces; national defense information; and others.

**CCJS 498 Selected Topics in Criminology and Criminal Justice (3)** Repeatable to 6 credits if content differs. Topics of special interest to advanced undergraduates in criminology and criminal justice. Offered in response to student request and faculty interest.

### CHEM – Chemistry

**CHEM 104 Fundamentals of Organic and Biochemistry (4)** Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM103 or CHEM105 or CHEM131. Credit will be granted for only one of the following: CHEM104 or CHEM231/232 or CHEM233 or CHEM237. Intended for students whose curricula require one year of chemistry. Students requiring two or more years of chemistry should register for CHEM233 or CHEM237. The chemistry of carbon: aliphatic compounds, aromatic compounds, stereochemistry, halides, amines, and amides, acids, esters, carbohydrates, and natural products.

**CHEM 121 Chemistry in the Modern World (3)** Three hours of lecture and one hour of discussion/recitation per week. Credit will be granted for only one of the following: CHEM102, or CHEM103, or CHEM105, or CHEM107, or CHEM111, or CHEM121. Basic chemical principles and terminology with applications to the chemistry of everyday life including food, metals, plastics and fibres. This course does not fulfill most chemistry requirements of the professional schools and colleges. When CHEM121 and CHEM122 are taken concurrently, together they fulfill the CORE laboratory science requirement.



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**CHEM 122 Laboratory Chemistry (1)** Pre- or corequisite: CHEM121. Credit will be granted for only one of the following: CHEM102, or CHEM103, or CHEM105, or CHEM111, or CHEM122. Formerly CHEM 111. Includes experiments illustrating the chemical principles and chemical applications in the modern world presented in CHEM121. When CHEM122 and CHEM121 are taken concurrently, together they fulfill the CORE laboratory science requirement.

**CHEM 131 Chemistry I - Fundamentals of General Chemistry (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: Placement in MATH113 or MATH115. Corequisite: CHEM132. Credit will be granted for only one of the following: CHEM103, CHEM131, CHEM135, CHEM143 or CHEM146. Formerly CHEM 103. An overview of the Periodic Table, inorganic substances, ionic and covalent bonding, bulk properties of materials, chemical equilibrium, and quantitative chemistry. CHEM131 is the first course in a four-semester sequence for students majoring in the sciences, other than Chemistry and Biochemistry majors.

**CHEM 132 General Chemistry I Laboratory (1)** Three hours of laboratory per week. Corequisite: CHEM131. Credit will be granted for only one of the following: CHEM103, CHEM132, CHEM136, CHEM143 or CHEM147. Formerly CHEM 103. Introduction to the quantification of chemical substances, including the concept of the mole and chemical stoichiometry. Additional work involves the synthesis of ionic substances and their qualitative characterization. Must be taken concurrently with CHEM131.

**CHEM 135 General Chemistry for Engineers (3)** Three hours of lecture and one hour of discussion/recitation per week. Pre- or corequisite: MATH115. Not open to students who have completed CHEM103, CHEM113, CHEM143, or CHEM153. Credit will be granted for only one of the following: CHEM103, CHEM113, CHEM133, CHEM135, CHEM143, OR CHEM153. The nature and composition of matter, solutions, chemical reactions, equilibria, and electrochemistry, with applications to various fields of engineering.

**CHEM 136 General Chemistry Laboratory for Engineers (1)** Three hours of laboratory per week. Pre- or corequisite: CHEM135. For ENGR majors only. A laboratory course for engineering majors intending to take CHEM231 and CHEM232.

**CHEM 146 Principles of General Chemistry (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: Placement in MATH115 or higher. Corequisite: CHEM147. For CHEM and BCHM majors only. Credit will be granted for only one of the following: CHEM103, CHEM131, CHEM135, CHEM143 or CHEM146. Formerly CHEM 143. An overview of the Periodic Table, inorganic substances, ionic and covalent bonding, bulk properties of materials, chemical equilibrium, and quantitative chemistry. CHEM146 is the first course in a four-semester sequence for Chemistry and Biochemistry majors.

**CHEM 147 Principles of Chemistry Laboratory (1)** Four hours of laboratory per week. Corequisite: CHEM146. For CHEM and BCHM majors only. Credit will be granted for only one of the following: CHEM103, CHEM132, CHEM136, CHEM143 or CHEM147. Formerly CHEM 143. Introduction to the synthesis and characterization of inorganic substances. Must be taken concurrently with CHEM146.

**CHEM 227 Inorganic and Analytical Chemistry Lab (4)** Two hours of lecture and six hours of laboratory per week. Prerequisite: CHEM113, or CHEM143, or (CHEM135 and CHEM136). Laboratory in inorganic chemistry and quantitative analysis for chemistry and biochemistry majors.

**CHEM 231 Organic Chemistry I (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: {CHEM131 and CHEM132} or {CHEM113 or CHEM153} or {CHEM135 and CHEM136} or {CHEM146 and CHEM147}. A grade of C or better in the prerequisite is required of Life Science majors and recommended for all students. Not open to students who have completed CHEM233 or CHEM237. Credit will be granted for only one of the following: CHEM104, CHEM231, CHEM233 or CHEM237. Formerly CHEM 233. The chemistry of carbon: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters and spectroscopy.

**CHEM 232 Organic Chemistry Laboratory I (1)** Prerequisite: {CHEM131 and CHEM132} or {CHEM113 or CHEM153} or {CHEM135 and CHEM136} or {CHEM146 and CHEM147}. A grade of C or better in the prerequisites is required for Life Science majors and recommended for all students. Corequisite: CHEM231. Not open to students who have completed CHEM104, CHEM233 or CHEM237. Credit will be granted for only one of the following: CHEM104, CHEM231, CHEM233 or CHEM237. Formerly CHEM 233. Provides experience in developing some basic laboratory techniques, recrystallization, distillation, extraction, chromatography.

**CHEM 237 Principles of Organic Chemistry I (4)** Three hours of lecture and four hours of laboratory per week. Prerequisite: A grade of C or better in {CHEM131 and CHEM132} or {CHEM146 and CHEM147} or CHEM113 or CHEM133 or CHEM153 or permission of department is required for Life Science majors. For CHEM, BCHM, and ENCH majors only. Credit will be granted for only one of the following: CHEM233 or CHEM237. The chemistry of carbons: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters, and spectroscopy.

**CHEM 241 Organic Chemistry II (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: {CHEM231 and CHEM232} or CHEM233 or CHEM237. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Not open to students who have completed CHEM243 or CHEM247. Credit will be granted for only one of the following: CHEM241, CHEM243 or CHEM247. Formerly CHEM 243. A continuation of CHEM231 with emphasis on molecular structure; substitution reactions; carbonium ions; aromaticity; synthetic processes; macromolecules.

**CHEM 242 Organic Chemistry Laboratory II (1)** Prerequisite: {CHEM231 and CHEM232} or CHEM233 or CHEM237. A grade of C or better in the prerequisite is required for Life Science majors or recommended for all students. Corequisite: CHEM241. Not open to students who have completed CHEM243 or CHEM247. Formerly CHEM 243. Synthetic organic chemistry through functional group manipulation, introduction to instrumentation essential to analysis and structure elucidation.

**CHEM 247 Principles of Organic Chemistry II (4)** Three hours of lecture and four hours of laboratory per week. Prerequisite: A grade of C or better in CHEM237 or permission of department. The "C" or better in the prerequisite is required for Life Science majors. For CHEM, BCHM, ENCH majors, and honors students only. Credit will be granted for only one of the following: CHEM243 or CHEM247. A continuation of CHEM237 with emphasis on molecular structure, substitution reactions; carbonium ions; aromaticity; synthetic processes; macromolecules.

**CHEM 271 General Chemistry and Energetics (2)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHEM241 and CHEM242; or CHEM247. A grade of C or better in the prerequisites for Life Sciences majors and recommended for all students. Corequisite: CHEM272. Not open to students who have completed CHEM113. Credit will be granted for only one of the following: CHEM113, CHEM153, CHEM271 or CHEM276. Formerly CHEM 113. An introduction to the physical aspects of chemistry; chemical kinetics, thermodynamics and electrochemistry in the context of current chemistry research.

**CHEM 272 General Bioanalytical Chemistry Laboratory (2)** One hour of lecture and three hours of laboratory per week. Prerequisite: CHEM241 and CHEM242; or CHEM247. A grade of C or better in the prerequisites is required for Life Sciences majors and recommended for all students. Corequisite: CHEM271. Credit will be granted for only one of the following: CHEM227, CHEM272 or CHEM277. An introduction to analytical chemistry with an emphasis on bio-analytical instrumentation and techniques.

**CHEM 276 General Chemistry and Energetics - Majors (2)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHEM 241 and CHEM242; or CHEM247. A grade of C or better in the prerequisite is required. Corequisite: CHEM277. For CHEM and BCHM majors only. Credit will be granted for only one of the following: CHEM113, CHEM153, CHEM 271 or CHEM276. Formerly CHEM 153. An introduction to the physical aspects of chemistry for Biochemistry and Chemistry majors. Chemical kinetics, thermodynamics and electrochemistry in the context of current chemistry research.

**CHEM 277 Fundamentals of Analytical and Bioanalytical Chemistry Laboratory (3)** One hour of lecture and six hours of laboratory per week. Prerequisite: CHEM241 and CHEM242; or CHEM247. A grade of C or better in the prerequisite is required. Corequisite: CHEM276. For CHEM and BCHM majors only. Credit will be granted for only one of the following: CHEM153, CHEM227, CHEM272 or CHEM277. Formerly CHEM 153. Quantitative analysis, inorganic analytical chemistry, and an introduction to bio-analytical instrumentation and techniques.

**CHEM 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**CHEM 395 Professional Issues in Chemistry and Biochemistry (1)** Junior standing. For CHEM and BCHM majors only. Seminar on professional issues. Professional responsibilities, ethics, interview techniques, career opportunities, graduate/professional school, race and gender issues.

**CHEM 398 Special Projects (2)** Honors projects for undergraduate students.

**CHEM 399 Introduction to Chemical Research (1-3)** Prerequisite: permission of department. Junior standing. Repeatable to 6 credits. Basic (chemical) research conducted under the supervision of a faculty member.

**CHEM 401 Inorganic Chemistry (3)** Prerequisite: CHEM243 or CHEM247. An overview of basic concepts of the electronic structure of the elements, chemical bonding and reactivity, from simple diatomic molecules to coordination compounds. These are viewed from simple (Lewis) to the most comprehensive molecular orbital theory. Symmetry and group theory are used throughout the course.

**CHEM 403 Radiochemistry (3)** Prerequisite: one year of college chemistry and one year of college physics. Radioactive decay; introduction to properties of atomic nuclei; nuclear processes in cosmology; chemical, biomedical and environmental applications of radioactivity; nuclear processes as chemical tools; interaction of radiation with matter.

**CHEM 425 Instrumental Methods of Analysis (4)** Two hours of lecture and six hours of laboratory per week. Prerequisite: {CHEM153 or CHEM227} or {CHEM271 and CHEM272} or {CHEM270 and CHEM276}. Modern instrumentation in analytical chemistry. Electronics, spectroscopy, chromatography and electrochemistry.

**CHEM 441 Advanced Organic Chemistry (3)** Prerequisite: CHEM481. Also offered as CHEM641. An advanced study of the compounds of carbon, with special emphasis on molecular orbital theory and organic reaction mechanisms.

**CHEM 450 Ethics in Science and Engineering (3)** Prerequisite: 8 credits laboratory science or permission of department. Ethical issues in science and their resolutions. Topics will be ethics and scientific truth, ethics and other scientists, and ethics and society.

**CHEM 460 Structure Determination Using Spectroscopic Methods (3)** Prerequisite: {CHEM243 or CHEM247} or {CHEM241 or CHEM242}. Formerly CHEM 660. The use of infrared, ultraviolet-visible, proton and carbon-13 nuclear magnetic resonance and mass spectroscopy for structure determination in organic chemistry.

**CHEM 474 Environmental Chemistry (3)** Prerequisite: CHEM481 or equivalent. The sources of various elements and chemical reactions between them in the atmosphere and hydrosphere are treated. Causes and biological effects of air and water pollution by certain elements are discussed.

**CHEM 481 Physical Chemistry I (3)** Prerequisite: A grade of C or better in CHEM113, CHEM135, or CHEM153; and MATH141 and PHYS142. The "C" or better in prerequisites is required for Life Science majors. A course primarily for chemists and chemical engineers.

**CHEM 482 Physical Chemistry II (3)** Prerequisite: A Grade of C or better in CHEM481. The "C" or better is required for Life Science majors. A course primarily for chemists and chemical engineers.

**CHEM 483 Physical Chemistry Laboratory I (2)** One hour lecture-recitation and one three-hour laboratory period per week. Corequisite: CHEM481. An introduction to the principles and application of quantitative techniques in physical chemical measurements. Experiments will be coordinated with topics in CHEM481.

**CHEM 484 Physical Chemistry Laboratory II (2)** One hour lecture-recitation and one three-hour laboratory period per week. Prerequisite: CHEM481 and CHEM483. Corequisite: CHEM482. A continuation of CHEM 483. Advanced quantitative techniques necessary in physical chemical measurements. Experiments will be coordinated with topics in CHEM 482.

**CHEM 491 Advanced Organic Chemistry Laboratory (4)** One hour of lecture and 10 hours of laboratory per week. Prerequisite: CHEM243. Formerly CHEM433 and CHEM443. Credit will be granted for only one of the following: CHEM433 and CHEM443 or CHEM491. Advanced synthetic techniques in organic chemistry with an emphasis on spectroscopy for structure determination.

**CHEM 492 Advanced Inorganic Chemistry Laboratory (3)** One hour of lecture and eight hours of laboratory per week. Corequisite: CHEM401. Synthetic and structural inorganic chemistry. Emphasis on spectroscopy methods for structure determination. Students complete an individual special project. (Designed to satisfy the university requirement for a Capstone course in chemistry.)

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**CHEM 493 Advanced Synthesis Laboratory (3)** One hour of lecture and eight hours of laboratory per week. Prerequisite: {CHEM241 and 242} or CHEM243 or {CHEM247 and CHEM401}. A grade of C or better in the prerequisite is required for Life Science majors and recommended for all students. Formerly: CHEM491 and CHEM492. Credit will be granted for only one of the following: CHEM491 and CHEM492; or CHEM493. A course in advanced synthesis of organic and inorganic compounds.

**CHEM 498 Special Topics in Chemistry (3)** Three lectures or two lectures and one three-hour laboratory per week. Prerequisite varies with the nature of the topic being considered. Course may be repeated for credit if the subject matter is substantially different, but not more than three credits may be accepted in satisfaction of major supporting area requirements for chemistry majors.

### CHIN – Chinese

**CHIN 101 Intensive Elementary Chinese I (6)** Non-majors admitted only after a placement interview. Introduction to speaking, reading, and writing Chinese with an emphasis on mastering the essentials of pronunciation, basic characters and structural patterns.

**CHIN 102 Elementary Spoken Chinese (3)** Prerequisite: CHIN101 or equivalent and permission of department. Non-majors admitted only after a placement interview. Continued study of grammatical patterns and vocabulary buildup with particular emphasis on conversation. May be taken in conjunction with CHIN 103.

**CHIN 103 Elementary Written Chinese (3)** Prerequisite: CHIN101 or equivalent and permission of department. Non-majors admitted only after a placement interview. Continued study of grammatical patterns and buildup of vocabulary with particular emphasis on reading and writing. May be taken in conjunction with CHIN102.

**CHIN 105 Elementary Chinese - Accelerated Track (3)** Prerequisite: permission of department. Not open to students who have completed CHIN101, CHIN102, or CHIN103. Accelerated instruction in Mandarin Chinese at the elementary level for students with prior Chinese language background, either through home use or formal instruction.

**CHIN 201 Intermediate Spoken Chinese I (3)** Prerequisite: CHIN102 or equivalent and permission of department. Non-majors admitted only after a placement interview. Emphasis on development of conversational skills with vocabulary buildup and controlled conversation.

**CHIN 202 Intermediate Written Chinese I (3)** Prerequisite: CHIN103 or equivalent and permission of department. Non-majors admitted only after a placement interview. Reading and writing skills with emphasis on grammar and Chinese characters.

**CHIN 203 Intermediate Spoken Chinese II (3)** Prerequisite: CHIN201 or equivalent and permission of department. Non-majors admitted only after a placement interview. Continuation of CHIN201.

**CHIN 204 Intermediate Written Chinese II (3)** Prerequisite: CHIN202 or equivalent and permission of department. Non-majors admitted only after a placement interview. Continuation of CHIN202.

**CHIN 205 Intermediate Chinese - Accelerated Track (3)** Prerequisite: permission of department. Not open to students who have completed CHIN201, CHIN202, CHIN203, or CHIN204. Accelerated instruction in Mandarin Chinese at the intermediate level for students with prior Chinese language background, either through home use or formal instruction.

**CHIN 207 Linguistic Resources for Students of Chinese (3)** One hour of lecture and two hours of discussion/recitation per week. Prerequisite: CHIN102 and CHIN103, or CHIN105. Not open to students who have completed CHIN428, CHIN421 or CHIN422. Training in the use of Chinese dictionaries, introduction to the relationship between traditional and simplified Chinese characters, overview of the main regional variations of Mandarin, review of elementary grammar.

**CHIN 213 Chinese Poetry into English: An Introduction (3)** Issues in the intercultural and interlingual interpretation of foreign literature through the study of Western translations of and scholarship on selected Chinese poets. No knowledge of Chinese required.

**CHIN 301 Advanced Chinese I (3)** Prerequisite: CHIN202 or equivalent. Non-majors admitted only after a placement interview. Readings in expository and fictional writing with conversation and composition.

**CHIN 302 Advanced Chinese II (3)** Prerequisite: CHIN301 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN301.

**CHIN 305 Life in China through TV Plays I (3)** Prerequisite: CHIN203, CHIN204 or permission of department. Using authentic Chinese language material in short TV plays to learn about society and life in China.

**CHIN 306 Life in China through TV Plays II (3)** Prerequisite: CHIN305 or permission of department. Continuation of CHIN305 using authentic Chinese language material in TV plays to learn about society and life in China.

**CHIN 313 Chinese Poetry and Prose in Translation (3)** Writing of the major poets, essayists, and historians from the 10th century B.C. to the 12th century A.D. No knowledge of Chinese is required.

**CHIN 314 Chinese Fiction and Drama in Translation (3)** Representative short stories, novels, and plays from the third through the nineteenth centuries. No knowledge of Chinese is required.

**CHIN 315 Modern Chinese Literature in Translation (3)** Major works of fiction and drama from 1920 to the present read in the context of social and literary change. Emphasis on western and traditional Chinese influences on the writers and their works. No knowledge of Chinese required.

**CHIN 316 Traditional Chinese Values (3)** Three hours of lecture and three hours of discussion/recitation per week. Classical Chinese thought and literature in English translation. Discussions will explore what these writings reflect about traditional Chinese ideas on morality and personal values—how should a person live, and why? What do the main philosophical schools have to say about the question?

**CHIN 321 Classical Chinese I (3)** Prerequisite: Satisfactory placement on departmental placement test. Credit will be granted for only one of the following: CHIN321 or CHIN403. Formerly CHIN 403. Introductory classical Chinese using literacy and historical sources in the original language.

**CHIN 322 Classical Chinese II (3)** Prerequisite: CHIN321, CHIN403, or permission of department. Credit will be granted for only one of the following: CHIN322 or CHIN404. Formerly CHIN 404. Further classical studies by various writers from famous ancient philosophers to prominent scholars before the new culture movement.

**CHIN 331 Chinese Calligraphy: Theory and Practice (3)** Beginning brushwork and lectures on the culture. Characters for practice selected to correspond to lecture topics. History of the writing system; major scripts, modes, and styles.

**CHIN 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**CHIN 388 Topics in Chinese Literature in Translation (3)** Repeatable to 6 credits if content differs. Analysis of significant themes and structures in Chinese literature. No knowledge of Chinese required.

**CHIN 389 Language House Spring Colloquium (1)** Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

**CHIN 401 Readings in Modern Chinese I (3)** Prerequisite: CHIN302 or equivalent. Non-majors admitted only after a placement interview. Readings in history, politics, economics, sociology, and literature. Emphasis on wide-ranging, rapid reading, reinforced by conversations and compositions.

**CHIN 402 Readings in Modern Chinese II (3)** Prerequisite: CHIN401 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN401.

**CHIN 403 Classical Chinese I (3)** Prerequisite: CHIN302. Introductory classical Chinese using literary and historical sources in the original language.

**CHIN 404 Classical Chinese II (3)** Prerequisite: CHIN302. Further classical studies by various writers from famous ancient philosophers to prominent scholars before the new culture movement.

**CHIN 408 Selected Readings in Classical Chinese (3)** Three hours of lecture and three hours of discussion/recitation per week. Prerequisites: CHIN321 or CHIN403 at UMCP or pass a placement test offered by the Chinese Program; and must know Pinyin. Students who do not know Pinyin must learn it before the end of the first week of classes or they will be required to drop. Repeatable to 9 credits if content differs. Selected readings in Classical Chinese, including important representative works of history, poetry, and parallel prose. Close attention is paid to matters of grammar and phonology in the readings. Content will differ each time this course is offered.

**CHIN 411 Business Chinese I (3)** Prerequisite: CHIN402 or permission of department. Non-majors admitted only after a placement interview. Not open to students who have completed CHIN303. Conversation, reading, and writing applicable to Chinese business transactions, social meetings, and meetings with government organizations, plus background material in English on professional business practices and social customs associated with business.

**CHIN 412 Business Chinese II (3)** Prerequisite: CHIN411 or permission of department. Non-majors admitted only after a placement interview. Not open to students who have completed CHIN304. Continuation of CHIN411.

**CHIN 413 Advanced Conversation and Composition (3)** Prerequisite: CHIN402 or permission of department. Non-majors admitted only after a placement interview. Not open to students who have completed CHIN405. Practice in writing essays, letters, and reports on selected topics. Conversation directed toward everyday situations and topics related to life in China.

**CHIN 415 Readings in Current Newspapers and Periodicals (3)** Prerequisite: CHIN402 or equivalent. Non-majors admitted only after a placement interview. Reading of periodical literature on selected topics with discussions and essays in Chinese.

**CHIN 421 Sounds and Transcriptions of Mandarin Chinese (3)** Production and recognition of Mandarin speech sounds and tones, their phonological patterns, comparison with English, and representation by the various Romanization systems.

**CHIN 422 Advanced Chinese Grammar (3)** Prerequisite: CHIN302, CHIN322, or permission of department. Chinese sentence patterns studied contrasted with English and in terms of current pedagogical as well as linguistic theories.

**CHIN 423 Chinese Historical and Dialect Phonology (3)** Prerequisite: CHIN302 or JAPN405. Formerly CHIN 428B. The history and structure of the sounds of Chinese language, with emphasis on the Medieval formal phonological system and its relationship to Mandarin and other modern languages. Students are expected to have advanced knowledge of written Chinese graphs (may include Japanese kanji or Korean hanja).

**CHIN 424 Linguistics of the Chinese Writing System (3)** Prerequisite: CHIN302 or JAPN405. Recommended: CHIN423. Also offered as SLAA798A. Formerly CHIN 428A. The history and structure of the Chinese writing system, with emphasis on its early development and place in the cognition of language. Students are expected to have advanced knowledge of written Chinese graphs (may include Japanese kanji or Korean hanja).

**CHIN 428 Selected Topics in Chinese Linguistics (3)** Prerequisite: permission of department. Sophomore standing. Repeatable to 12 credits if content differs. Undergraduate seminar in Chinese linguistics. Topics may include the ancient writing system, historical phonology, dialectology, prosody and rhyming, grammar and the history of the language as a whole. This course may be repeated with different content, and satisfies the linguistics requirement for the Chinese major. Students are expected to be in at least Third Year Chinese. Taught in English.

**CHIN 431 Translation and Interpretation I (3)** Prerequisite: CHIN302 or equivalent and permission of department. Theory and practice of Chinese/English translation and interpretation with emphasis on translation.

**CHIN 432 Translation and Interpretation II (3)** Prerequisite: CHIN402 or equivalent and permission of department. Workshop on Chinese/English translation and interpretation, with emphasis on seminar (consecutive) interpretation and introduction to conference (simultaneous) interpretation.

**CHIN 441 Traditional Chinese Fiction (3)** Prerequisite: permission of department. Major works of fiction from the 4th century tales of the marvelous through the 19th century Ching novel. Taught in Chinese.

**CHIN 442 Modern Chinese Fiction (3)** Prerequisite: permission of department. Examination, through selected texts, of the writer's role as shaper and reflector of the Republican and Communist revolutions. Taught in Chinese.

**CHIN 499 Directed Study in Chinese (1-3)** Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Readings in Chinese under faculty supervision.

### CLAS – Classics

**CLAS 100 Classical Foundations (3)** Aspects of the ancient world taught through the medium of influential classical texts.

**CLAS 170 Greek and Roman Mythology (3)** Taught in English, no prerequisite: cannot be taken for language credit. This course is particularly recommended for students planning to major in foreign languages, English, history, the fine arts, or journalism.

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**CLAS 171 Classical Myths in Europe (1)** Prerequisite: CLAS170. Freshman standing. The role which Classical Myths have played in the arts, architecture and politics of a major European city. This will only be offered through the study abroad program.

**CLAS 270 Greek Literature in Translation (3)** Selections in translation of Greek literature from Homer to Lucian, with special emphasis on epic and dramatic poetry. No knowledge of Greek or Latin is required.

**CLAS 271 Roman Literature in Translation (3)** Selections in translation of Latin literature to the time of Apuleius. Special emphasis will be placed on poetry of the Augustan Age. No knowledge of Latin is required.

**CLAS 308 The Classics in Context (1-3)** Three hours of lecture per week. Prerequisite: Permission of department. Repeatable to 9 credits if content differs. A Study Abroad course which introduces students to the topography, archaeology and culture of the ancient Mediterranean world.

**CLAS 309 Special Topics in Classical Literature (3)** Repeatable to 9 credits if content differs. Readings in translation.

**CLAS 310 Ancient Philosophy (3)** Prerequisite: six credits in classics or philosophy. Credit will be granted for only one of the following: CLAS310 or PHIL310. The origins and development of philosophy and science in Ancient Greece, focusing on the pre-Socratics, Socrates, Plato and Aristotle.

**CLAS 315 Greek and Roman Athletics (3)** The origin and evolution of athletics in ancient Greece and Rome studied as recreation, as play, as education, as a profession and as mass entertainment.

**CLAS 320 Women in Classical Antiquity (3)** Also offered as WMST320. Credit will be granted for only one of the following: CLAS320 or WMST320. A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal and artistic evidence; special emphasis in women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

**CLAS 330 Ancient Greek Religion: Gods, Myths, Temples (3)** Survey of Greek religious ideas and practices as they evolve from the Bronze Age to the early Christian period.

**CLAS 331 Roman Religion: From Jupiter to Jesus (3)** Formerly CLAS 309J. Survey of the major institutions of Roman state and private religion and of the diverse religions, including Judaism and Christianity, practiced in the Roman empire.

**CLAS 370 Classical Myths in America (3)** Prerequisite: CLAS170. Sophomore standing. Credit will be granted for only one of the following: CLAS370 or HONR269W. Formerly HONR 269W. The role which Greek and Roman Myths have played in American culture and politics.

**CLAS 372 Classical Epic (3)** Introduction to major classical epic poems in translation.

**CLAS 374 Greek Tragedy in Translation (3)** Study and analysis of the tragedies of Aeschylus, Sophocles and Euripides with special attention to the concepts of character and of thought as conceived by Aristotle in The Poetics.

**CLAS 375 Ancient Comedy (3)** Representative plays by Aristophanes, Menander, Plautus and Terence in translation; examination of Greek tradition in Roman and postclassical periods.

**CLAS 376 The Ancient Novel (3)** Reading and analysis of ancient fictional prose narratives.

**CLAS 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**CLAS 419 The Classical Tradition (3)** Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 9 credits if content differs. Credit will be granted for only one of the following: CLAS419 or CLAS420. Formerly CLAS 420. Examination of the role of Greek and Roman civilization in shaping the arts and ideas of western culture.

**CLAS 470 Approaches to Greek Mythology (3)** Prerequisite: CLAS170 or permission of department. Ancient and modern approaches to understanding Greek myth as expression of human experience, including interpretations drawn from psychology, anthropology, and comparative mythology.

**CLAS 488 Independent Study in Classical Civilization (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

**CLAS 495 Senior Thesis in Classics (3)** Prerequisite: permission of department. Prior departmental approval of research topic is required. Available to all students who wish to pursue a specific research topic.

**CLAS 499 Independent Study in Classical Languages and Literatures (1-3)** Prerequisite: permission of department.

### CMLT – Comparative Literature

**CMLT 214 Film Form and Culture (3)** Introduction to film forms in international perspective. Emphasis on the techniques of film analysis, distinctions among film genres, and the history of cinema.

**CMLT 235 Introduction to the Literatures of the African Diaspora (3)** Credit will be granted for only one of the following: CMLT235 or ENGL235. Introduction to authors, periods, and genres reflecting the diversity of African and African Diaspora cultures.

**CMLT 270 Global Literature and Social Change (3)** Comparative study of literature through selected literary works from several non-Western cultures, viewed cross-culturally in light of particular social, political, and economic perspectives.

**CMLT 275 World Literature by Women (3)** Also offered as WMST275. Credit will be granted for only one of the following: CMLT275 or WMST275. Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.

**CMLT 277 Literatures of the Americas (3)** Comparative study of several North, South, and Central American cultures with a focus on the specificities, similarities, and divergences of their literary and cultural texts.

**CMLT 280 Film Art in a Global Society (3)** Two hours of lecture and two hours of laboratory per week. Comparative study of a variety of film traditions from around the world, including cinema from Hollywood, Europe, Asia and developing countries, with a stress on different cultural contexts for film-making and viewing.

**CMLT 291 International Perspectives on Lesbian and Gay Studies (3)** Exploration of the construction and representation of sexualities in cultures around the globe, with particular emphasis on literature and media.

**CMLT 298 Topics in Comparative Studies (3-6)** Repeatable to 9 credits if content differs.

**CMLT 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**CMLT 415 The Hebrew Bible (3)** A study of sources, development and literary types.

**CMLT 469 The Continental Novel (3)** The novel in translation from Stendhal through the existentialists, selected from literatures of France, Germany, Italy, Russia, and Spain.

**CMLT 479 Major Contemporary Authors (3)**

**CMLT 488 Genres (3)** Repeatable to 6 credits if content differs. A study of a recognized literary form, such as tragedy, film, satire, literary criticism, comedy, tragicomedy, etc.

**CMLT 489 Major Writers (3)** Each semester two major writers from different cultures and languages will be studied. Authors will be chosen on the basis of significant relationships of cultural and aesthetic contexts, analogies between their respective works, and the importance of each writer to his literary tradition.

**CMLT 498 Selected Topics in Comparative Studies (3)**

### CMPS – Computer, Mathematical and Physical Sciences

**CMPS 299 Special Topics (.50-3)** Prerequisite: By permission of the CMPS Dean's Office. For CMPS majors only. Repeatable to 8 credits if content differs.

**CMPS 496 NASA Academy (4)** Two hours of lecture and four hours of laboratory per week. Prerequisite: College Permission. Junior standing. Also offered as ENES496 or GEOG496. Credit will be granted for only one of the following: CMPS496, ENES496 or GEOG496. A ten-week resident summer institute at Goddard Space Flight Center for juniors, seniors and first-year graduate students interested in pursuing professional and leadership careers in aerospace-related fields. The national program includes research in a Goddard laboratory, field trips to NASA centers, and a combination of lectures and workshops on the mission, current activities and management of NASA. Students interested in the Academy will find information at <http://www.nasa-academy.nasa.gov> Application should be made by the end of January; sponsorship by an affiliated State Space Grant Consortium is customary, but not required.

**CMPS 497 Experiential Learning (1-3)** Prerequisite: Permission of CMPS Department. For CMPS majors only. This course is part of the experiential learning internship program, Corporate Scholars, set up by the college and industry. It offers students an opportunity to gain practical experience in their chosen career fields.

### CMSC – Computer Science

**CMSC 102 Introduction to Information Technology (3)** For non-majors only. Not recommended for BMGT students. Not open to students who have completed CMSC106, CMSC114, CMSC132 or CMSC214. Credit will be granted for only one of the following: CMSC102, CMSC132 or CMSC214. If CMSC102 is taken before CMSC132 or CMSC214, then credit will be granted for both. An introduction to computer terminology and concepts of computing and information technology. Hands-on experience with a variety of tools available to access the Internet, to find information, as well as PC applications such as a word processor and a spreadsheet package. Students will work in multiple environments (for example, both Windows and UNIX).

**CMSC 106 Introduction to C Programming (4)** Three hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. Pre- or corequisite: MATH140 Only for CMPS, ENCP and students with major code: 2299F. Not open to students who have completed CMSC114 or higher. Design and analysis of programs in C. An introduction to computing using structured programming concepts. For further information contact the Undergraduate Education Office, Computer Science Department.

**CMSC 107 Introduction to the UNIX Operating System (3)** Recommended: prior experience with computing. Effective use of UNIX tools for students of all disciplines. UNIX file system; shell programming; text editing; filters; pipes; macro processing; data analysis; text processing; document maintenance.

**CMSC 114 Computer Science I (4)** Three hours of lecture and two hours of laboratory per week. Prerequisite: CMSC106 with a grade of C or better; and permission of department based on satisfactory performance on the department's placement exams. Corequisite: MATH141. Not open to students who have completed CMSC214 or higher. Credit will be granted for only one of the following: CMSC114 or CMSC113. With CMSC214, this course forms a one-year sequence for computer science majors. Introduction to UNIX. Procedural and data abstraction using C++. CMPS and Computer Engineering students will be given priority for registration until the first day of classes.

**CMSC 131 Object-Oriented Programming I (4)** Three hours of lecture and two hours of discussion/recitation per week. Corequisite: MATH140 and permission of department. Not open to students who have completed CMSC114. Introduction to programming and computer science. Emphasizes understanding and implementation of applications using object-oriented techniques. Develops skills such as program design and testing as well as implementation of programs using a graphical IDE. Programming done in Java.

**CMSC 132 Object-Oriented Programming II (4)** Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: CMSC131 with a grade of C or better; or a score of 5 on the A Java AP exam; or a score of 4 or 5 on the AB Java AP exam; or permission of the department based on satisfactory performance on the department placement exam and permission of department. Corequisite: MATH141. Introduction to use of computers to solve problems using software engineering principles. Design, build, test, and debug medium -size software systems and learn to use relevant tools. Use object-oriented methods to create effective and efficient problem solutions. Use and implement application programming interfaces (APIs). Programming done in Java.

**CMSC 198 Special Topics in Computer Science for Non-Majors (1-4)** Repeatable to 6 credits if content differs. Not open to CMSC students. A course designed to allow non-computer science majors and non-computer engineering majors to pursue a specialized topic or project.

**CMSC 212 Introduction to Low-Level Programming Concepts (4)** Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: CMSC132 with a grade of C or better; or permission of the department based on satisfactory performance on the department placement exam and permission of department. Corequisite: CMSC250. Introduction to many of the concepts that lie behind software, such as hardware, memory layout, memory management, and operating systems. Explain how these concepts affect the design of software systems.

**CMSC 214 Computer Science II (4)** Three hours of lecture and two hours of laboratory per week. Prerequisites: CMSC114 with a grade of C or better; or a score of 4 or 5 on either the A or the AB C++ AP exam; or permission of department based on satisfactory performance on the department placement exam. Corequisite: CMSC250. Credit will be granted for only one of the following: CMSC214 or CMSC113. Elementary data structures, recursion, and object-oriented programming using C++.

**CMSC 250 Discrete Structures (4)** Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: CMSC131 with a grade of C or better; MATH141; and permission of department. Formerly CMSC 150. Fundamental mathematical concepts related to computer science, including finite and infinite sets, relations, functions, and propositional logic. Introduction to other techniques, modeling and solving problems in computer science. Introduction to permutations, combinations, graphs, and trees with selected applications.

**CMSC 297 Honors Seminar (1)** An introduction to the breadth of computer science research. Intended for all Computer Science Honors students, especially those considering a career in research. Will cover work from some of the key figures in the history of computer science, as well as research being pursued at Maryland.

**CMSC 298 Special Topics in Computer Science (1-4)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. A course designed to allow a lower level student to pursue a specialized topic or project.

**CMSC 311 Computer Organization (3)** Prerequisite: CMSC212 (or CMSC214) with a grade of C or better and CMSC250 with a grade of C or better and permission of department. Introduction to assembly language. Design of digital logic circuits. Organization of central processors, including instruction sets, register transfer operations, control microprogramming, data representation, and arithmetic algorithms. Memory and input/output organization.

**CMSC 330 Organization of Programming Languages (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: CMSC212 (or CMSC214) with a grade of C or better and CMSC250 with a grade of C or better and permission of department. The semantics of programming languages and their run-time organization. Several different models of languages are discussed, including procedural (e.g., C, Pascal), functional (e.g., ML, LISP), rule-based (e.g., Prolog), and object-oriented (e.g., C++, Smalltalk). Run-time structures, including dynamic versus static scope rules, storage for strings, arrays, records, and object inheritance are explored.

**CMSC 351 Algorithms (3)** Prerequisite: CMSC212 (or CMSC214) with a grade of C or better and CMSC250 with a grade of C or better and permission of department. CMSC351 may not count as one of the required upper level CMSC courses for students who are required to have 24 upper level CMSC credits for graduation, i.e. for students who became computer science majors prior to Fall, 2002. Credit will be granted for only one of the following: CMSC251 or CMSC351. Formerly CMSC 251. A systematic study of the complexity of some elementary algorithms related to sorting, graphs and trees, and combinatorics. Algorithms are analyzed using mathematical techniques to solve recurrences and summations.

**CMSC 390 Honors Paper (3)** Prerequisite: admission to CMSC Honors Program. Special study or research directed toward preparation of honors paper.

**CMSC 411 Computer Systems Architecture (3)** Prerequisite: A grade of C or better in (CMSC311 or ENEE350) and a grade of C or better in CMSC330; and permission of department; or CMSC graduate student. Input/output processors and techniques. Intra-system communication, buses, caches. Addressing and memory hierarchies. Microprogramming, parallelism, and pipelining.

**CMSC 412 Operating Systems (4)** Three hours of lecture and two hours of laboratory per week. Prerequisites: A grade of C or better in (CMSC311 or ENEE350) and a grade of C or better in CMSC330; and permission of department; or CMSC graduate student. An introduction to batch systems, spooling systems, and third-generation multiprogramming systems. Description of the parts of an operating system in terms of function, structure, and implementation. Basic resource allocation policies.

**CMSC 414 Computer and Network Security (3)** Prerequisite: A grade of C or better in (CMSC311 or ENEE350) and a grade of C or better in CMSC330; and permission of department; or CMSC graduate student. An introduction to the topic of security in the context of computer systems and networks. Identify, analyze, and solve network-related security problems in computer systems. Fundamentals of number theory, authentication, and encryption technologies, as well as the practical problems that have to be solved in order to make those technologies workable in a networked environment, particularly in the wide-area Internet environment.

**CMSC 415 Systems Programming (3)** Prerequisites: CMSC412 with a grade of C or better; and permission of department; or CMSC graduate student. Basic algorithms of operating system software. Memory management using linkage editors and loaders, dynamic relocation with base registers, paging. File systems and input/output control. Processor allocation for multiprogramming, timesharing. Emphasis on practical systems programming, including projects such as a simple linkage editor, a stand-alone executive, a file system, etc.

**CMSC 417 Computer Networks (3)** Prerequisite: A grade of C or better in CMSC351, a grade of C or better in (CMSC311 or ENEE350), and a grade of C or better in CMSC330; and permission of department; or CMSC graduate student. Computer networks and architectures. The OSI model including discussion and examples of various network layers. A general introduction to existing network protocols. Communication protocol specification, analysis, and testing.

**CMSC 420 Data Structures (3)** Prerequisites: A grade of C or better in CMSC330 and in CMSC351; and permission of department; or CMSC graduate student. Description, properties, and storage allocation of data structures including lists and trees. Algorithms for manipulating structures. Applications from areas such as data processing, information retrieval, symbol manipulation, and operating systems.

**CMSC 421 Introduction to Artificial Intelligence (3)** Prerequisites: A grade of C or better in CMSC330 and in CMSC351; and permission of the department or CMSC graduate student. Areas and issues in artificial intelligence, including search, inference, knowledge representation, learning, vision, natural languages, expert systems, robotics. Implementation and application of programming languages (e.g. LISP, PROLOG, SMALLTALK), programming techniques (e.g. pattern matching, discrimination networks) and control structures (e.g. agendas, data dependencies).

**CMSC 422 Programming Robots (3)** Prerequisite: CMSC212 with a grade of C or better and permission of department; or CMSC graduate student. An examination of programming issues involved in creating autonomous robots, which can interact with their environments in "intelligent" ways. Topics include traditional robotics, behavior-based robotics, sensor processing, sensor-based control, programming robotic behaviors. Team programming project. Note: Not for credit in graduate program for computer science.

**CMSC 423 Bioinformatic Algorithms, Databases, and Tools (3)** Prerequisite: CMSC351 or permission of department. A practical introduction to the main topics in algorithms, databases, and tools used in bioinformatics. Includes public databases such as Genbank and PDG, software tools such as BLAST, and their underlying algorithms. Use of Perl scripting language to perform a number of useful tasks in analyzing sequence data and managing bioinformatic databases.

**CMSC 424 Database Design (3)** Prerequisite: CMSC420 with a grade of C or better; and permission of department; or CMSC graduate student. Motivation for the database approach as a mechanism for modeling the real world. Review of the three popular data models: relational, network, and hierarchical. Comparison of permissible structures, integrity constraints, storage strategies, and query facilities. Theory of database design logic.

**CMSC 426 Image Processing (3)** Prerequisite: CMSC 420 and permission of department; or CMSC graduate student. An introduction to basic techniques of analysis and manipulation of pictorial data by computer. Image input/output devices, image processing software, enhancement, segmentation, property measurement, Fourier analysis. Computer encoding, processing, and analysis of curves.

**CMSC 427 Computer Graphics (3)** Prerequisites: MATH240; and a grade of C or better in CMSC420; and permission of department; or CMSC graduate student. An introduction to the principles of computer graphics. Includes an introduction to graphics displays and systems. Introduction to the mathematics of affine and projective transformations, perspective, curve and surface modeling, algorithms for hidden-surface removal, color models, methods for modeling illumination, shading, and reflection.

**CMSC 430 Theory of Language Translation (3)** Prerequisites: a grade of C or better in CMSC330; and permission of department; or CMSC graduate student. Formal translation of programming languages, program syntax and semantics. Finite state recognizers and regular grammars. Context-free parsing techniques such as recursive descent, precedence, LL(k) and LR(k). Code generation, improvement, syntax-directed translation schema.

**CMSC 433 Programming Language Technologies and Paradigms (3)** Prerequisite: CMSC330; and permission of department; or CMSC graduate student. Programming language technologies (e.g., object-oriented programming), their implementations and use in software design and implementation.

**CMSC 434 Introduction to Human-Computer Interaction (3)** Prerequisites: CMSC330 with a grade of C or better and PSYC100; and permission of department; or CMSC graduate student. Assess usability by quantitative and qualitative methods. Conduct task analyses, usability tests, expert reviews, and continuing assessments of working products by interviews, surveys, and logging. Apply design processes and guidelines to develop professional quality user interfaces. Build low-fidelity paper mockups, and a high-fidelity prototype using contemporary tools such as graphic editors and a graphical programming environment (eg: Visual Basic, Java).

**CMSC 435 Software Engineering (3)** Prerequisites: (CMSC412, CMSC417, CMSC420, CMSC430, or CMSC433) with a grade of C or better and permission of department; or CMSC graduate student. State-of-the-art techniques in software design and development. Laboratory experience in applying the techniques covered. Structured design, structured programming, top-down design and development, segmentation and modularization techniques, iterative enhancement, design and code inspection techniques, correctness, and chief-programmer teams. The development of a large software project.

**CMSC 450 Logic for Computer Science (3)** Prerequisites: (CMSC351 and MATH141) with grade of C or better and permission of department; or CMSC graduate student. Also offered as MATH450. Credit will be granted for only one of the following: MATH445 or CMSC450/MATH450. Elementary development of propositional and first-order logic accessible to the advanced undergraduate computer science student, including the resolution method in propositional logic and Herbrand's Unsatisfiability Theorem in first-order logic. Included are the concepts of truth, interpretation, validity, provability, soundness, completeness, incompleteness, decidability and semi-decidability.

**CMSC 451 Design and Analysis of Computer Algorithms (3)** Prerequisite: a grade of C or better in CMSC351; and permission of department; or CMSC graduate student. Fundamental techniques for designing efficient computer algorithms, proving their correctness, and analyzing their complexity. General topics include sorting, selection, graph algorithms, and basic algorithm design paradigms (such as divide-and-conquer, dynamic programming and greedy algorithms), lower bounds and NP-completeness.

**CMSC 452 Elementary Theory of Computation (3)** Prerequisite: CMSC351 with a grade of C or better; and permission of department; or CMSC graduate student. Alternative theoretical models of computation, types of automata, and their relations to formal grammars and languages.

**CMSC 456 Cryptology (3)** Prerequisites: Any two 400-level MATH courses; OR CMSC330 and CMSC351; and permission of department; or CMSC graduate student. Also offered as MATH456. Credit will be granted for only one of the following: CMSC456 or MATH456. Importance in protecting data in communications between computers. The subject lies on the border between mathematics and computer science. Mathematical topics include number theory and probability, and computer science topics include complexity theory.

**CMSC 460 Computational Methods (3)** Prerequisites: MATH240; and MATH241; and CMSC106 or CMSC114 or ENEE114; and permission of department; or CMSC graduate student. Also offered as AMSC460. Credit will be granted for only one of the following: AMSC/CMSC/MAPL460 or AMSC/CMSC/MAPL466. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

**CMSC 462 Computer Science for Scientific Computing (3)** Prerequisite: CMSC106 or CMSC131; and (AMSC460 or CMSC460); or permission of department. This course cannot be used toward the upper-level math requirement for MATH and STAT majors. Students who take CMSC311 or CMSC330 will not be given credit for this course. Also offered as AMSC462. Credit will be granted for only one of the following: AMSC462 or CMSC462. A survey of computer science for scientists and engineers. The goal is to enable the student to write efficient, well-organized programs for today's machines. Topics to be treated include computer organization, computer arithmetic, processes and operating systems, the memory hierarchy, comparison of the Fortran and C families of languages, compilers, the run time environment, memory allocation, preprocessors and portability, and documentation. Specific topics will vary from semester to semester.

**CMSC 466 Introduction to Numerical Analysis I (3)** Prerequisites: MATH240; and MATH241; and CMSC106 or CMSC114 or ENEE114; and permission of department; or CMSC graduate student. Also offered as AMSC466. Credit will be granted for only one of the following: AMSC/CMSC/MAPL460 or AMSC/CMSC/MAPL466. Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.

**CMSC 475 Combinatorics and Graph Theory (3)** Prerequisites: MATH240 and MATH241; and permission of department; or CMSC graduate student. Also offered as MATH475. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.

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**CMSC 477 Optimization (3)** Prerequisites: (AMSC/CMSC/MAPL460, AMSC/CMSC/MAPL466, or AMSC/CMSC/MAPL467) with a grade of C or better and permission of department; or CMSC graduate students. Also offered as AMSC477. Credit will be granted for only one of the following: AMSC477, CMSC477 or MAPL477. Linear programming including the simplex algorithm and dual linear programs; convex sets and elements of convex programming; combinatorial optimization, integer programming.

**CMSC 498 Selected Topics in Computer Science (1-3)** Prerequisite: permission of department. An individualized course designed to allow a student or students to pursue a selected topic not taught as a part of the regular course offerings under the supervision of a Computer Science faculty member. In addition, courses dealing with topics of special interest and/or new emerging areas of computer science will be offered with this number. Selected topics courses will be structured very much like a regular course with homework, project and exams. Credit according to work completed

**CMSC 499 Independent Undergraduate Research (1-3)** Prerequisite: permission of department; restricted to Computer Science and Computer Engineering Majors. Students are provided with an opportunity to participate in a computer science research project under the guidance of a faculty advisor. Format varies. Students and supervising faculty member will agree to a research plan which must be approved by the department. As part of each research plan, students should produce a final paper delineating their contribution to the field.

### COMM – Communication

**COMM 100 Foundations of Oral Communication (3)** Not open to students who have completed COMM107. Credit will be granted for only one of the following: COMM100 or COMM107. Prerequisite for advanced communication courses. A study of oral communication principles, including verbal and nonverbal language, listening, group dynamics, and public speaking. Emphasis in this course is upon the application of these principles to contemporary problems and upon the preparation of different types of oral discourse.

**COMM 107 Oral Communication: Principles and Practices (3)** Not open to students who have completed COMM100. Credit will be granted for only one of the following: COMM100 or COMM107. A study of and practice in oral communication, including principles of interviewing, group discussion, listening, informative briefings, and persuasive speeches.

**COMM 125 Introduction to Interpersonal Communication (3)** Concepts of interpersonal communication including perception, language and meaning, nonverbal communication, listening and feedback.

**COMM 170 Foundations of Listening (3)** Role, process, and levels of listening behavior and the development of listening skills.

**COMM 200 Critical Thinking and Speaking (3)** Theory and practice of persuasive discourse analysis and composition. Research techniques, logical and rhetorical conceptions of argument, and technical principles for persuading in public venues.

**COMM 220 Small Group Discussion (3)** Principles, methods and types of interaction occurring in small groups with an emphasis on group discussion and decision-making.

**COMM 230 Argumentation and Debate (3)** A study of the fundamental principles of reasoning, analysis, and evidence preparation of debate briefs and presentation of standard academic debate.

**COMM 231 News Writing and Reporting for Public Relations (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: Grammar competency demonstrated by a score of 52 or higher on the TWSE and permission of department. Limited to COMM majors. Credit will be granted for only one of the following: JOUR201, JOUR201P, JOUR231, or COMM231. Formerly JOUR 231. Introduction to writing and researching news and information media for public relations; laboratory in news-gathering tools and writing techniques for public relations.

**COMM 232 News Editing for Public Relations (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: Grade of C or better in COMM231 or equivalent and permission of department. Limited to COMM majors. Credit will be granted for only one of the following: JOUR202, JOUR202P, JOUR232, or COMM232. Formerly JOUR 232. Copy editing, graphic principles and processes, news and information technologies for public relations.

**COMM 250 Introduction to Communication Inquiry (3)** An introduction to the field of communication. Definitions, models, and contexts of communication; rhetorical theory and rhetorical criticism of discourse.

**COMM 288 Communication Internship (1-6)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. An individual experience arranged by the student with the instructor. Does not satisfy communication major requirements. 45 hours of supervised internship per credit hour with communication professional. Not a substitute for COMM386.

**COMM 298 Selected Topics in Communication (3)** Repeatable to 6 credits if content differs. Special topical study of contemporary issues in communication.

**COMM 324 Communication and Gender (3)** The creation of images of male and female, and masculine and feminine, through communication, the differences in male and female communication behaviors and styles, and the implications of those images and styles for male-female transactions.

**COMM 330 Argumentation and Public Policy (3)** Contemporary theories of argumentation with special emphasis on methods of formulating and critiquing public policy argument.

**COMM 340 Communicating the Narrative (3)** The role of narratives in communicating messages and development of strategies to effectively communicate the narrative form through storytelling, oral reading, and anecdotes.

**COMM 350 Public Relations Theory (3)** Prerequisite: Grade C or better in JOUR201, JOUR231, COMM231 or COMM250; or permission of department. For COMM majors only. Not open to students who have completed JOUR330. Credit will be granted for only one of the following: COMM350 or COMM430 or JOUR330 or JOUR530. Formerly JOUR 330. The historical development and contemporary status of public relations in business, government, associations and other organizations. Application of communication theory and social science methods to the research, planning, communication and evaluation aspects of the public relations process.

**COMM 351 Public Relations Techniques (3)** Prerequisite: A grade C or better in JOUR202, JOUR232 or COMM232; and COMM350. For COMM majors only. Not open to students who have completed JOUR331. Credit will be granted for only one of the following: COMM351 or JOUR331. Formerly JOUR 331. The techniques of public relations, including news releases, publications and printed materials, audio-visual techniques, speeches and special events. Application of these techniques in laboratory and field projects.

**COMM 352 Specialized Writing in Public Relations (3)** Prerequisite: A grade of C or better in COMM351. For COMM majors only. Not open to students who have completed JOUR332. Credit will be granted for only one of the following: COMM352 or JOUR332. Formerly JOUR 332. Public Relations writing for science, technology, health, medicine, corporate finance, educational policy, law and government in broadcast and technical media, as well as newspapers, magazines, proposals, speeches and correspondence.

**COMM 354 Public Relations Programs (3)** Prerequisite: COMM350. Not open to students who have completed JOUR334. Credit will be granted for only one of the following: COMM354 or JOUR334. Formerly JOUR 334. Analysis of eight major programs typically carried out by public relations professionals: employee relations, media relations, financial relations, member relations, governmental relations, community relations, fundraising and dealing with activist public.

**COMM 360 The Rhetoric of Black America (3)** An historical-critical survey of the rhetoric of Black Americans from the colonial period to the present.

**COMM 370 Mediated Communication (3)** Prerequisite: COMM250. Junior standing. Analysis and critique of structure, performance, content, effects, and future of mediated communication.

**COMM 383 Urban Communication (3)** A study of communication variations in the urban setting with emphasis on communication problems encountered in ethnic relations. Strategies for improving communication.

**COMM 386 Experiential Learning (3-6)** 45 hours of supervised internship per credit hour Only 3 credits may be used to fulfill the requirements for the Communication major. Prerequisite: permission of department. Junior standing. For COMM majors only. Supervised internship experience with communication professionals. Relation of academic training to professional experience.

**COMM 388 Communication Practicum (1-3)** Prerequisite: permission of department. Repeatable to 3 credits if content differs. Supervised professional-level practice in communication.

**COMM 398 Selected Topics in Communication (3)** Repeatable to 6 credits if content differs. Topical study of contemporary issues in communication.

**COMM 399 Honors Thesis (3)** Nine hours of laboratory per week. Prerequisite: permission of department. For COMM majors only. Repeatable to 6 credits if content differs.

**COMM 400 Research Methods in Communication (3)** Prerequisite: COMM250 and an introductory course in statistics. For COMM majors only. Philosophy of scientific method; role of theory; research ethics; empirical research methods (measurement, sampling, design, analysis).

**COMM 401 Interpreting Strategic Discourse (3)** Prerequisite: COMM250. For COMM majors only. Principles and approaches for practical analysis of discourse designed to shape audience opinion.

**COMM 402 Communication Theory and Process (3)** Prerequisite: COMM250. For COMM majors only. Philosophical and conceptual analysis of communication theories.

**COMM 420 Theories of Group Discussion (3)** Current theory, research and techniques regarding small group process, group dynamics, leadership and decision-making.

**COMM 421 Communicating Leadership (3)** Not open to students who have completed COMM498L. Examines the nature of leadership, theories of leadership from a communication perspective, relationships between leadership, authority, power, and ethics. Explores leadership responsibilities, commitments, and actions.

**COMM 422 Communication Management (3)** Communication policies, plans, channels, and practices in the management of the communication function in organizations.

**COMM 423 Communication Processes in Conferences (3)** Group participation in conferences, methods of problem solving, semantic aspects of language, and the function of conferences in business, industry and government settings.

**COMM 424 Communication in Complex Organizations (3)** Structure and function of communication within organizations: organizational climate and culture, information flow, networks and role relationships.

**COMM 425 Negotiation and Conflict Management (3)** Role of communication in shaping negotiation and conflict processes and outcomes.

**COMM 426 Conflict Management (3)** Recommended: COMM425, COMM250, and COMM402. Role of communication in managing conflict processes.

**COMM 430 Public Relations Theory and Techniques (3)** Prerequisite: JOUR201 or equivalent; and permission of department. Not open to students who have completed COMM350. Credit will be granted for only one of the following: COMM350, COMM430, COMM630, JOUR530 and JOUR630. Formerly JOUR 530. Theories relevant to the strategic management of public relations and techniques used in programs to communicate with publics of organizations

**COMM 435 Theories of Interpersonal Communication (3)** Prerequisite: COMM400 or permission of department. Major theoretical approaches and research trends in the study of interpersonal communication.

**COMM 450 Ancient and Medieval Rhetorical Theory (3)** Prerequisite: COMM250. For COMM majors only. Credit will be granted for only one of the following: COMM450, or COMM650. A survey of rhetorical theory in the ancient and medieval periods. Emphasis is placed on the theoretical problems that gave rise to its development within both periods. Authors include Isocrates, Plato, Aristotle, Cicero, Quintilian, Hermogenes, Martianus Capella, Aurelius Augustine, Alberic of Monte Cassino, Geoffrey of Vinsauf and Robert of Basevorn.

**COMM 451 Renaissance & Modern Rhetoric Theory (3)** A survey of rhetorical theory in the renaissance and modern periods. Emphasis is placed on the theoretical trends that dominate rhetorical thinking during both periods—especially in Great Britain. Authors include Wilson, Sherry, Rainolde, Day, Hyperius, Cox, Ramus, Talon, Bacon, Pascal, Fenelon, Sheridan, Campbell, Blair, and Whately.

**COMM 453 The Power of Discourse in American Life (3)** The potential of language forms and strategic discourse to create, perpetuate, and alter patterns of political and cultural behavior. The influence of contemporary political and cultural discourse on public understanding, public policy, and day-to-day life.

**COMM 455 Speechwriting (3)** The study of message strategies in order to research and develop effective speech texts appropriate to speakers and their audiences in various public contexts.

**COMM 458 Seminar in Political Communication (3)** Prerequisite: COMM250. Repeatable to 6 credits if content differs. The examination of special topics for and theories of political communication.

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**COMM 460 Public Life in American Communities, 1634-1900 (3)** Ways that Americans have used their voice to create public life. Focus is on the diverse social communities that have characterized American life and the place and characteristics of oral discourse in each.

**COMM 461 Voices of Public Leadership in the Twentieth Century (3)** Study of the use of speaking in the power struggles of the twentieth century. Focus is on important speakers of the century, their social and policy influence, and the struggle to expand the diversity of voices with power in the public sphere.

**COMM 468 Seminar in Mediated Communication (3)** Prerequisites: COMM/JOUR350 or COMM402 or COMM450. Junior standing. Repeatable to 6 credits if content differs. The examination of special topics related to the study of mediated communication.

**COMM 469 The Discourse of Social Movements (3)** Recommended: COMM401. Junior standing. Repeatable to 6 credits if content differs. Study of key social movements that have influenced American social and political life. In alternate years the Civil Rights Movement and the Rhetoric of Women's Suffrage and Abolitionism. Consideration of how groups excluded from or marginalized in American political life affect social change.

**COMM 470 Listening (3)** The principles of listening behavior.

**COMM 471 Public Communication Campaigns (3)** Prerequisite: COMM200 or permission of department. Diffusion theory and its implications for public communication campaigns.

**COMM 472 Nonverbal Communication (3)** Nonverbal communication in human interaction theory and research on proxemics, kinesics and paralanguage as expression of relationship, affect and orientation within and across cultures.

**COMM 475 Persuasion (3)** Bases of persuasion, with emphasis on recent experimental developments in persuasion.

**COMM 476 Language, Communication, and Action (3)** The nature of communication as symbolic action. Topics include language, meaning, intention, understanding, and consequences of communication.

**COMM 477 Discourse Analysis (3)** Concepts of textual and discourse analysis applied to speech situations.

**COMM 478 Communication Colloquium (1)** Repeatable to 4 credits if content differs. Current trends and issues in the field of communication, stressing recent research methods. Recommended for senior and graduate student majors and minors in communication.

**COMM 482 Intercultural Communication (3)** The major variables of communication in an intercultural context: cultural, racial and national differences; stereotypes; values; cultural assumptions; and verbal and nonverbal channels.

**COMM 483 Senior Seminar in Public Relations (3)** Prerequisite: COMM351 and COMM400. Not open to students who have completed JOUR483. Credit will be granted for only one of the following: COMM483 or JOUR483. Formerly JOUR 483. Integration of theory, techniques and research methods into the planning and execution of public relations campaigns for specific organizations. Analysis of research on the case studies of public relations.

**COMM 488 Communication Portfolio Project (1)** Senior standing. For COMM majors only. Repeatable to 3 credits if content differs. Preparation of the professional communication portfolio.

**COMM 489 Topical Research (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Individualized research projects conducted with a faculty sponsor.

**COMM 498 Seminar (3)** Prerequisite: permission of instructor. Senior standing. Present-day communication research.

### CPSP – College Park Scholars Program

**CPSP 118 College Park Scholars Colloquium I (1-3)** Prerequisite: admission to College Park Scholars Program. Introductory colloquium for specific College Park Scholars Program.

**CPSP 124 Issues in International Studies (3)** Prerequisite: admission to College Park Scholars International Studies Program. Introduction to the study of international relations by providing students with framework to understand forces which shape the behavior of nation-states and contribute to international conflict and cooperation.

**CPSP 126 Issues in Public Leadership (3)** Prerequisite: admission to College Park Scholars Public Leadership Program. Development of effective leaders and change agents through analysis and application of leadership theories and definitions, personal leadership, tasks and processes of leadership, leader/follower interactions, group dynamics, and transformation of communities.

**CPSP 218 College Park Scholars Colloquium II (1-3)** Prerequisite: admission to College Park Scholars Program. Colloquium for specific College Park Scholars Program.

**CPSP 227 College Park Scholars Capstone: Science, Technology, and Society (3)** Prerequisite: An [SB] CORE course and admission to College Park Scholars Program. Capstone course for College Park Scholars - Science, Technology, and Society Program. Exploration and understanding of ways science and technology shape and are shaped by society.

**CPSP 229 Supervised Online Communication Practicum (1-3)** Prerequisite: Admission to College Park Scholars Program. Repeatable to 6 credits. Introduction to concepts and skills of web publishing through simulation of e-business environment. As teams, students form start-up web design companies and create websites for clients from non-profit organizations. Fulfills the experiential learning course requirement for College Park Scholars Citation.

**CPSP 239 Individual Practicum (1-3)** Prerequisite: Admissions to College Park Scholars Program. Repeatable to 6 credits. Independent study or internship in interest area supervised by faculty member. Must be approved by program faculty director. Fulfills the experiential learning course requirement for College Park Scholars Citation.

**CPSP 249 Service-Learning (1-3)** Prerequisite: Admissions to College Park Scholars Program. Repeatable to 6 credits. Use of community service projects as the context for building knowledge and skills. Structured class meetings for critical analysis and reflection on topics such as citizenship, community, leadership, and discipline-specific issues. Fulfills the experiential learning course requirement for the College Park Scholars Citation.

**CPSP 259 Discovery Projects Research (1-3)** Prerequisite: Admissions to College Park Scholars Program. Repeatable to 6 credits if content differs. Through independent research with faculty and subject matter experts, sophomores design and implement research study using specific methodologies on topic of interest. Findings presented at annual campus showcase. Fulfills the experiential learning course requirement for the College Park Scholars Citation.

**CPSP 288 Special Topics in College Park Scholars (1-3)** Prerequisite: Admission to College Park Scholars Program. Repeatable to 6 credits if content differs. Topics of special interest to College Park Scholars, such as case studies, book groups on science and technology, facilitating dialogue, and other timely issues.

**CPSP 318 College Park Scholars Colloquium III (1-3)** Prerequisite: admission to College Park Scholars Program. Colloquium for specific College Park Scholars Program.

**CPSP 339 Advanced Practicum (1-3)** Prerequisite: Admissions to College Park Scholars Program and permission of instructor. Repeatable to 6 credits. Independent study designed for students who wish to extend in greater depth and detail projects begun in sophomore year. Subject varies. Overseen by faculty director or mentor.

**CPSP 369 Guided College Park Scholars Teaching (1-3)** Prerequisites: Admission to College Park Scholars Program and permission of instructor. Repeatable to 6 credits. For CPSP colloquia section leaders. Guided teaching experience for selected students in College Park Scholars Program.

**CPSP 379 College Park Scholars Travel Study (3)** Restricted to College Park Scholars students or by permission. Repeatable to 6 credits if content differs. College Park Scholars travel studies course focused on a multidisciplinary theme.

### CPSP 386 Experiential Learning (3-6)

**CPSP 388 Advanced Special Topics in College Park Scholars (1-3)** Prerequisite: Admissions to College Park Scholars Program. Repeatable to 6 credits if content differs. Interdisciplinary topics of special interest to College Park Scholars, such as legacies of the cold war, environmental ethics, women in leadership, and other timely issues. Projects build on previous work in College Park Scholars.

### DANC – Dance

**DANC 102 Rhythmic Training for Dance (2)** One hour of lecture and two hours of laboratory per week. Prerequisite: Restricted to DANC majors. All other majors will require permission. Basic approaches to rhythmic principles related to dance.

**DANC 109 Improvisation I (2)** One hour of lecture and two hours of laboratory per week. Prerequisite: Restricted to DANC majors. All other majors will require permission. Repeatable to 4 credits. An introduction to the process of spontaneous movement discovery involving solo and group movement experiences.

**DANC 118 Beginning Tap (2)** One hour of lecture and two hours of laboratory per week. Repeatable to 4 credits. Introduction to tap for the beginning student.

**DANC 119 Introduction to American Social Dance (2)** One hour of lecture and two hours of laboratory per week. Repeatable to 4 credits. Social dance forms of North America.

**DANC 128 Fundamentals of Ballet (2)** One hour of lecture and two hours of laboratory per week. For non-majors only. Repeatable to 4 credits. Introduction to ballet technique and terminology for the beginning student.

**DANC 138 Introduction to Ethnic Dance (2)** Repeatable to 4 credits with permission of department. Traditional dances and music of selected cultures.

**DANC 148 Fundamentals of Modern Dance (2)** One hour of lecture and two hours of laboratory per week. For non-majors only. Repeatable to 4 credits. Introduction to modern dance with emphasis on the development of fundamental movement skills.

**DANC 149 Fundamentals of Modern Dance II (2)** Two hours of laboratory and one hour of discussion/recitation per week. Prerequisite: DANC148. Repeatable to 4 credits. Continuation of the development of axial and locomotor movement skills with emphasis on the development of functional alignment, musicality, range of movement, coordination, and movement memory.

**DANC 158 Fundamentals of Jazz (2)** One hour of lecture and two hours of laboratory per week. For non-majors only. Repeatable to 4 credits. Introduction to the jazz style in dance for the beginning student.

**DANC 171 Movement Integration (2)** One hour of lecture and two hours of laboratory per week. Techniques for reducing tension and achieving integrated muscular control and coordination.

**DANC 199 Practicum in Choreography, Production and Performance I (1-3)** Prerequisite: permission of department. Repeatable to 6 credits. Choreography, production, and performance of student works, both on and off campus.

**DANC 200 Introduction to Dance (3)** A study of dance as a form of communication and as an art form; a survey of the theories and styles of dance, and their relationships to other art forms.

**DANC 208 Choreography I (3)** Prerequisites: DANC102 and DANC109. Repeatable to 6 credits. Basic principles of dance composition: space, time, dynamics, and movement invention. The development of critical awareness.

**DANC 210 Dance Production (3)** A survey of theatre crafts and techniques involved in dance production, including lighting, sound, set and costume design and construction, stage-management and videotaping.

**DANC 228 Ballet I (2)** One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Barre and center work for alignment, strength, flexibility and coordination. Introduction to ballet terminology.

**DANC 229 Ballet II (2)** One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Continuation of DANC228.

**DANC 248 Modern Dance I (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: Dance major standing or permission of department. Repeatable to 6 credits. Body alignment, rhythm, dynamics, space and dance phrases.

**DANC 249 Modern Dance II (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC248 and permission of department. Repeatable to 6 credits. Continuation of DANC248.

**DANC 258 Jazz I (2)** One hour of lecture and two hours of laboratory per week. Prerequisite: DANC158 or dance major standing. Repeatable to 4 credits. Jazz warm-ups and combinations emphasizing rhythm and movement isolations.

**DANC 259 Jazz II (2)** One hour of lecture and two hours of laboratory per week. Prerequisite: DANC258. Repeatable to 4 credits. Continuation of the principles of Jazz I. Emphasis on style and execution of movement.

**DANC 299 Practicum in Choreography, Production and Performance II (1-3)** Prerequisite: DANC199 or permission of department. Repeatable to 6 credits. Continuation of DANC199.

**DANC 302 Music Sources for Dance (3)** Prerequisite: DANC102 or permission of department. Study of musical literature, improvisation and composition as they relate to dance. Techniques of instrumental accompaniment.



## 186 Approved Courses

**DANC 305 Principles of Teaching Dance (3)** Prerequisites: DANC102, DANC208, and DANC248. Theory and practice of dance instruction including methods, lesson plans and practice teaching.

**DANC 306 Creative Dance for Children (3)** Prerequisite: DANC305 or equivalent. Communication of the essential elements of dance to children. The development of movement into simple forms to serve as a symbol of creative individual expression.

**DANC 308 Choreography II (3)** Prerequisite: DANC208. Repeatable to 6 credits. Exploration of the formal elements of choreography; theme, development, repetition, contrast, transition, continuity and structure.

**DANC 309 Improvisation II (2)** Prerequisite: DANC109 or audition. Repeatable to 4 credits. Continuation of DANC109.

**DANC 310 Dance Lighting (3)** Prerequisite: DANC210. Two lectures and two laboratory periods per week. Theory and practice of stage lighting with specific reference to designing for dance.

**DANC 328 Ballet III (2)** One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Execution of the vocabulary of ballet movement with technical accuracy.

**DANC 329 Ballet IV (2)** One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Continuation of DANC328.

**DANC 348 Modern Dance III (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC249 and permission of department. Repeatable to 6 credits. The body as an instrument of expression; techniques for increasing kinesthetic sensitivity.

**DANC 349 Modern Dance IV (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC348 and permission of department. Repeatable to 6 credits. Continuation of DANC348.

**DANC 365 Labanotation (3)** Prerequisites: DANC102 and DANC248. Formerly DANC 266. Introduction to Rudolf Laban's system of structural movement analysis.

**DANC 367 Dance in World Cultures (3)** An examination of non-Western dance forms, including classical, ceremonial, and folk-traditional in their historical and societal contexts.

**DANC 370 Kinesiology for Dancers (4)** A study of the biological and physical principles of movement and the effects of dancing upon the structure and function of the human body.

**DANC 379 Practicum in Dance (1-3)** Repeatable to 12 credits. Performing experience for the student dancer who has developed a professional level of competence.

**DANC 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**DANC 388 Choreography III (3)** Prerequisite: DANC308 or equivalent. Repeatable to 6 credits. Theoretical and creative aspects of choreography for small groups. Emphasis on individual projects.

**DANC 398 Directed Studies in Dance (1-6)** Prerequisite: permission of department. Repeatable to 6 credits.

**DANC 399 Practicum in Choreography, Production and Performance III (1-3)** Prerequisite: DANC299 or permission of department. Repeatable to 6 credits. Continuation of DANC299.

**DANC 410 Technical Theater Production for Dance (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC210 or equivalent (or permission of department). A study of the theoretical principles of production and the practical application of those principles to the presentation of dance works.

**DANC 428 Advanced Ballet Technique I (1)** Two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 3 credits. Advanced ballet technique with emphasis on physical and expressive skills.

**DANC 429 Advanced Ballet Technique II (1)** Two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 3 credits. Intensive work in ballet technique for the professionally-oriented dancer.

**DANC 448 Modern Dance V (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC349 and audition. Repeatable to 6 credits. Complex phrases of modern dance movement with emphasis on articulation and expression.

**DANC 449 Modern Dance VI (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: DANC448 and permission of department. Repeatable to 6 credits. Continuation of DANC448.

**DANC 466 Laban Movement Analysis (3)** Introduction to Rudolf Laban's system of qualitative movement analysis in relation to understanding personal movement style. Application to dance performance, teaching, composition and research.

**DANC 468 Modern Repertory (3)** Prerequisite: DANC349 or permission of department. Repeatable to 6 credits if content differs. Form, content, music, design and performance of modern dance works.

**DANC 479 Advanced Practicum in Dance (1-3)** Repeatable to 6 credits. Advanced level performing experience for the student dancer who has developed an advanced professional level of competence.

**DANC 482 History of Dance I (3)** Prerequisite: DANC200. The development of dance from primitive times to the Middle Ages and the relationship of dance forms to patterns of culture.

**DANC 483 History of Dance II (3)** Prerequisite: DANC200. The development of dance from the Renaissance period to the present time and the relationship of dance forms to patterns of culture.

**DANC 485 Seminar in Dance (3)** Prerequisite: DANC483. Senior standing. For DANC majors only. Formerly DANC 484. Individual research leading to a presentation with written documentation of the process, serving as a culmination of undergraduate study for dance majors.

**DANC 489 Special Topics in Dance (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Theoretical, choreographic, pedagogic, or performance study.

**DANC 499 Practicum in Choreography, Production and Performance IV (1-6)** Prerequisite: permission of department. Repeatable to 6 credits. Advanced workshop in dance presentation, including performing, production and planned field experiences.

### EALL – East Asian Languages and Literatures

**EALL 300 The Languages of East Asia (3)** A survey of Chinese, Japanese, Korean, and the languages of other East Asian nationalities. Provides a basic understanding of the structures of these languages. Topics covered include the characterizing features; the relationships of the languages to each other; the geographical, social, and historical settings. No knowledge of Asian languages is required. The course is taught in English.

### ECON – Economics

**ECON 200 Principles of Micro-Economics (4)** Prerequisite: MATH110 or placement in MATH115 or above. It is recommended that students complete ECON200 before taking ECON201. Credit will be granted for only one of the following: ECON200 or ECON203. Formerly ECON 203. This course emphasizes the behavior of individual consumers and business firms, problems of international trade and finance, the distribution of income, policies for eliminating poverty and discrimination, the problems of environmental pollution, and the impact of different market structures upon economic activity.

**ECON 201 Principles of Macro-Economics (4)** Prerequisite: MATH110 or placement in MATH115 or above. It is recommended that students complete ECON200 before taking ECON201. Credit will be granted for only one of the following: ECON201 or ECON205. An introduction to the problems of unemployment, inflation, and economic growth. Emphasis on roles of monetary and fiscal policy in the conduct of macroeconomic policy. The efficacy of wage and price controls is analyzed.

**ECON 305 Intermediate Macroeconomic Theory and Policy (3)** Prerequisites: ECON200; and ECON201; and MATH220. Analysis of the determination of national income, employment, and price levels. Discussion of consumption, investment, inflation, and government fiscal and monetary policy.

**ECON 306 Intermediate Microeconomic Theory (3)** Prerequisites: ECON200; and ECON201; and MATH220. Analysis of the theories of consumer behavior and of the firm, market systems, distribution theory and the role of externalities.

**ECON 310 European Economic History (3)** Prerequisite: ECON200 and 201. The evolution of the capitalist system from its medieval origins to the present. Emphasis on dynamic forces of cumulative change in capitalism, including capital accumulation, technology, expansion of markets, the corporate form of private property in the means of production, and the relation of capitalism to war and revolution.

**ECON 311 American Economic History Before the Civil War (3)** Prerequisites: ECON200 and ECON201. American economic history before the Civil War. Topics include: the British settlement of the North American colonies, economic development in the colonial period, the economics of the American Revolution, the writing of the Constitution, the development of financial markets in the early 19th century, public lands and the spread of western agriculture, slavery, banking, and early industrialization.

**ECON 312 American Economics After the Civil War (3)** Prerequisites: ECON200 and ECON201. American Economic history since the Civil War. Topics include: the economics of the Civil War, the performance of southern agriculture in the late 19th century, the rise of large corporations, industrialization, the development of financial markets, the creation of the Federal Reserve Board, the economics of the Great Depression and the New Deal, the economic impact of World War II, and the rise of the modern service economy in the late 20th century.

**ECON 314 Economic History, Development and Policy (3)** Prerequisite: ECON 200, ECON 201 and permission of department. For ECON majors only. Study abroad in the economic history, institutional development, and recent economic policy problems of selected areas.

**ECON 315 Economic Development of Underdeveloped Areas (3)** Prerequisites: (ECON200 and ECON201) or ECON205. Credit will be granted for only one of the following: ECON315 or ECON416. Analysis of the economic and social characteristics of underdeveloped areas. Recent theories of economic development, obstacles to development, policies and planning for development.

**ECON 321 Economic Statistics (3)** Prerequisite: ECON200, ECON201, MATH220 or MATH140 or permission of department. For ECON majors only. Not open to students who have completed BMGT230 or BMGT231. Formerly ECON 421. Introduction to the use of statistics in economics. Topics include: Probability, random variables and their distributions, sampling theory, estimation, hypothesis testing, analysis of variance, regression analysis and correlation.

**ECON 330 Money and Banking (3)** Prerequisite: ECON200 and ECON201. Credit will be granted for only one of the following: ECON330 or ECON430. Formerly ECON 430. The structure of financial institutions and their role in the provision of money and near money. Analysis of the Federal Reserve System, the techniques of central banks, and the control of supply of financial assets in stabilization policy. Relationship of money and credit to economic activity and the price level.

**ECON 340 International Economics (3)** Prerequisite: ECON200 and ECON201. Credit will be granted for only one of the following: ECON340, ECON440 or ECON441. Formerly ECON 440. A description of international trade and the analysis of international transactions, exchange rates, and balance of payments. Analysis of policies of protection, devaluation, and exchange rate stabilization and their consequences.

**ECON 350 Introduction to Public Sector Economics (3)** Prerequisite: (ECON200 and ECON201) or ECON205. Credit will be granted for only one of the following: ECON350 or ECON450. Formerly ECON 450. The role of federal, state, and local governments in meeting public wants. Analysis of theories of taxation, public expenditures, government budgeting, benefit-cost analysis and income redistribution, and their policy applications.

**ECON 370 Labor Markets, Human Resources, and Trade Unions (3)** Prerequisites: (ECON200 and ECON201) or ECON205. Credit will be granted for only one of the following: ECON370 or ECON470. A survey of labor markets and the American labor movement. Analysis of labor force growth and composition, problems of unemployment and labor market operations, theories of wage determination, the wage-price spiral, collective bargaining, and governmental regulation of employment and labor relations.

**ECON 375 Economics of Poverty and Discrimination (3)** Prerequisites: (ECON200 and ECON201) or ECON205. The causes of the persistence of low income groups; the relationship of poverty to technological change, to economic growth, and to education and training; economic results of discrimination; proposed remedies for poverty and discrimination.

**ECON 381 Environmental Economics (3)** Prerequisite: ECON200, ECON205, or permission of department. Application of economic theory to problems of environmental quality and management. Theory of economic externalities, common property resources, alternative pollution control measures, and limits to economic growth.

**ECON 386 Experiential Learning (3-6)** Prerequisite: ECON200, ECON201, GPA > 2.75. Junior standing. For ECON majors only.

**ECON 387 Major Transitions: From Undergraduate to Professional (1)** Junior standing. For ECON majors only. Credit will be granted for only one of the following: BSOS388C or ECON387. Formerly BSOS 388C. Course involves a focus on students' interests and professional opportunities in their field; integration of major program of study and career concern; issues of transition into graduate school and employment; includes experiential/explorational activities.

**ECON 391 Survey of Urban Economics Problems and Policies (3)** Credit will be granted for only one of the following: ECON391 or ECON490. Formerly ECON 490. An introduction to the study of urban economics through the examination of current policy issues. Topics may include suburbanization of jobs and residences, housing and urban renewal, urban transportation, development of new towns, ghetto economic development, problems in services such as education and police.

**ECON 396 Independent Honors Study (3)** Prerequisite: candidacy for honors in economics or by permission of instructor. Normally taken in senior year. Course will explore selected topics in economic theory and its application in depth. Analysis of methodologies in economic research and the development of student skills in research methods. Students will prepare workshop papers.

**ECON 397 Honors Thesis (3)** Prerequisites: ECON396 and candidacy for honors in economics. General supervision will be provided through assembled meetings with the professor in charge of the course.

**ECON 398 Topics in Economics (3)** Prerequisite: ECON200, ECON201, and permission of department. Repeatable to 6 credits if content differs. This course is designed to meet the changing interests of students and staff. Topics vary in response to those interests. Students are advised to seek information about the coverage and prerequisites during the registration period.

**ECON 399 Individual Reading and Research For Undergraduates (1-3)** Prerequisite: ECON200, ECON201, and permission of department. Repeatable to 6 credits if content differs. By arrangement with individual faculty members. This course is designed for students desiring specialized instruction and guidance in subjects not covered in the course offerings. Before enrollment, the students must secure agreement from an individual faculty member to act as their supervisor. A program of reading, research and evaluation will be worked out between the student and the faculty member.

**ECON 401 Current Issues in American Economic Policy (3)** Prerequisite: ECON306; or permission of department. For ECON majors only. Credit will be granted for only one of the following: ECON301 or ECON401. Formerly ECON 301. Analysis of current economic problems and public policies. Inflation, unemployment, market power, government regulation, poverty and distribution of income, federal budget and tax policy, environment.

**ECON 402 Macroeconomic Models and Forecasting (3)** Prerequisite: ECON305 or ECON405. Analysis of the fluctuations in economic activity and the formulation and use of forecasting models of the economy. Illustrations of computer macro models and forecasting problems.

**ECON 407 Advanced Macroeconomics (3)** Prerequisite: ECON305; or permission of department. For ECON majors only. An in-depth analysis of current issues in macroeconomic theory and policy. Topics covered include: 1. alternative perspectives on macroeconomics including monetarism, new classical equilibrium models, rational expectations, and real business cycle models; 2. long term growth, the slowdown in productivity growth, and concerns about U.S. competitiveness; 3. the effectiveness of macroeconomic policy in an open economy; 4. the effects of finance on the real sector.

**ECON 413 Information and Markets (3)** Prerequisite: ECON306. Presents advanced microeconomic theory, concentrating on how information affects exchange and market outcomes, including insurance, signaling, reputations, and incentive contracts. Studies applications to various markets and policy questions.

**ECON 414 Game Theory (3)** Prerequisites: ECON306; or permission of department. For ECON majors only. Credit will be granted for only one of the following: ECON414 or ECON417. Formerly ECON 417. Studies the competitive and cooperative behavior that results when several parties with conflicting interests must work together. Learn how to use game theory to analyze situations of potential conflict. Applications are drawn from economics, business, and political science.

**ECON 415 Strategic Behavior and Incentives (3)** Prerequisite: ECON 414 or permission of department. Most decisions are not made in isolation, but involve interaction with others. Applies the foundations of game theory learned in ECON 414 to several important topics in business and economics. Emphasis is on topics of practical importance: negotiation, markets with few participants, pricing and incentives.

**ECON 416 Theory of Economic Development (3)** Prerequisite: ECON 305 or ECON 405. Credit will be granted for only one of the following: ECON 315 or ECON 416. Economic theory of the developing nations; role of innovation, capital formation, resources, institutions, trade and exchange rates, and governmental policies.

**ECON 418 Economic Development of Selected Areas (3)** Prerequisite: ECON306 and ECON315 or ECON416. Repeatable to 6 credits if content differs. Institutional characteristics of a specific area are discussed and alternate strategies and policies for development are analyzed.

**ECON 422 Quantitative Methods in Economics I (3)** Prerequisites: ECON200, ECON201, and ECON321; or permission of department. For ECON majors only. Emphasizes the interaction between economic problems and the assumptions employed in statistical theory. Formulation, estimation, and testing of economic models, including single variable and multiple variable regression techniques, theory of identification, and issues relating to inference. Independent work relating the material in the course to an economic problem chosen by the student is required.

**ECON 423 Quantitative Methods in Economics II (3)** Prerequisite: ECON422. Interaction between economic problems and specification and estimation of econometric models. Topics include issues of autocorrelation, heteroscedasticity, functional form, simultaneous equation models, and qualitative choice models.

**ECON 424 Computer Methods in Economics (3)** Prerequisites: ECON305, ECON306, ECON321, and major code 22040. For ECON majors only. Database development from Internet and other sources, research methods, and statistical analysis in economics using EXCEL and SAS.

**ECON 425 Mathematical Economics (3)** Prerequisites: ECON305 or ECON405, and ECON306 or ECON406, and MATH220 or equivalent. Mathematical developments of theory of household and firm, general equilibrium and welfare economics, market imperfections, and role of information.

**ECON 435 Financial Markets and the Macroeconomy (3)** Prerequisite: ECON306. Not open to finance majors. For ECON majors only. Credit will be granted for only one of the following: BMGT343 or ECON435. Formerly ECON 398F. The different types of financial assets that exist, the markets that they trade in, and the determination of their prices and rates of return are examined. Specific topics that will be covered include the Markowitz portfolio selection model, the capital asset pricing model, the arbitrage pricing theory, the efficient markets hypothesis, the term structure of interest rates, and options. There will be almost no emphasis on issues in corporate finance.

**ECON 441 Theory of International Economics (3)** Prerequisite: ECON305 or ECON405; and ECON306 or ECON406; or permission of department. For ECON majors only. Credit will be granted for only one of the following: ECON340, ECON440 or ECON441. Theoretical treatment of international trade and international finance. Includes Ricardian and Heckscher-Ohlin theories of comparative advantage, analysis of tariffs and other trade barriers, international factor mobility, balance of payments adjustments, exchange rate determination, and fiscal and monetary policy in an open economy.

**ECON 442 Globalization and Capital Markets (3)** Prerequisite: ECON305 and ECON306. For ECON majors only. Credit will be granted for only one of the following: ECON398M or ECON442. Formerly ECON 398M. Includes principals of open-economy macroeconomics used to explain the causes and consequences of international capital flows. Analysis is made of private consumption, investment, the government sector, current accounts, the labor market, and the money and foreign exchange markets in small open economies. This framework is then used to study examples of how speculative attacks on currencies, sudden reversals of capital inflows, and the effects of the lack of credibility of economic policy affect economic development.

**ECON 451 Public Choice (3)** Prerequisite: ECON306. Analysis of collective decision making, economic models of government, program budgeting, and policy implementation; emphasis on models of public choice and institutions which affect decision making.

**ECON 454 Theory of Public Finance and Fiscal Federalism (3)** Prerequisite: ECON306 or ECON406; or permission of department. For ECON majors only. Credit will be granted for only one of the following: ECON450 or ECON454. Study of welfare economics and the theory of public goods, taxation, public expenditures, benefit-cost analysis, and state and local finance. Applications of theory to current policy issues.

**ECON 456 Law and Economics (3)** Prerequisite: ECON306. Relationship of the exchange process to the system of institutions and rules that society develops to carry out economic transactions. Topics covered include: Property rights; torts, negligence, and liability; contracts and exchanges; criminal control and enforcement; equity issues in the rule and market environment.

**ECON 457 Economics of the Gambling Industry (3)** Prerequisite: ECON306, ECON321, and MATH140 (or higher). For ECON majors only. Analysis of basic economic issues related to the gambling industry. Topics will include: (i) structure and profitability of the gambling industry; (ii) public policy issues (distribution of the tax burden, addiction, government operation of lotteries); (iii) probabilistic and microeconomic elements of various games in play (lotteries, blackjack, keno, poker, sports gambling, etc) and related issues in strategic behavior; (iv) microeconomic similarities and distinctions between risky investment and gambling.

**ECON 460 Industrial Organization (3)** Prerequisite: ECON306 or ECON406; or permission of department. For ECON majors only. Changing structure of the American economy; price policies in different industrial classifications of monopoly and competition in relation to problems of public policy.

**ECON 461 Economics of Regulation and Anti-trust (3)** Prerequisite: ECON306. For ECON majors only. Credit will be granted for only one of the following: ECON398R or ECON461. Formerly ECON 398R. Considers government intervention in economic activity of three types: antitrust policy, regulation of natural monopolies, and health safety regulation. Covers theoretical models, real-world policy applications, and empirical studies relevant to the impact of regulation.

**ECON 465 Health Care Economics (3)** Prerequisite: ECON 306. Analysis of health care, the organization of its delivery and financing. Access to care; the role of insurance; regulation of hospitals, physicians, and the drug industry; role of technology; and limits on health care spending.

**ECON 470 Theory of Labor Economics (3)** Prerequisite: ECON306; or permission of department. For ECON majors only. Credit will be granted for only one of the following: ECON370 or ECON470. An analytical treatment of theories of labor markets. Marginal productivity theory of labor demand; allocation of time in household labor supply models; theory of human capital; earnings differentials; market structure and the efficiency of labor markets; the role of trade unions; discrimination; and unemployment.

**ECON 480 Seminar in the New Economy (3)** Prerequisites: ECON305, ECON306, and permission of department. For ECON majors only. Credit will be granted for only one of the following: ECON398J or ECON480. Formerly ECON 398J. Six research topics will be examined each semester. The course will be divided into six modules, each focusing on the research of an Economic Department faculty member. Topics vary depending on the faculty members in the course in any given year. Students will be expected to prepare a short research paper for each module.

## EDCI – Curriculum and Instruction

**EDCI 280 Introduction to Teaching (3)** Development of conceptual understanding of the teaching-learning process. Seminar to coordinate on-and off-campus experiences. Two hours each week on campus with an arranged six hours each week in schools.

**EDCI 288 Special Topics in Teacher Education (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

**EDCI 298 Special Problems in Teacher Education (1-6)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

**EDCI 300 Disciplined-Based Art Education Methods I (3)** Three hours of lecture and three hours of laboratory per week. Prerequisites: admission to teacher education program; 2.5 GPA; permission of department. For art education majors only. EDCI300 is designed to provide prospective art teachers with a knowledge base of the theories and best practices which are relevant to effective pedagogy as well as current art education goals and standards. This course focuses on understanding and using research-based teaching techniques and strategies in planning, teaching and evaluating instruction in the K-12 classroom. Emphasis is placed on principles of effective instruction, classroom management, multiculturalism, thinking/questioning/problem solving skills and adaptation/modification of instruction for diverse student populations. Students will be encouraged to explore their understandings and beliefs about teaching (pedagogy) and learning.

**EDCI 301 Teaching Art in the Elementary School (3)** For elementary and pre-elementary education majors only. Not open to art education majors. Art methods and materials for elementary schools. Includes laboratory experiences with materials appropriate for elementary schools. Emphasis on emerging areas of art education for the elementary classroom teacher.

**EDCI 314 Teaching Language, Reading, Drama and Literature with Young Children (3)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDHD312; and EDDD313; EDHD419A; and EDHD416. For early childhood education majors on ly. Introduction to the teaching of reading in the context of the language arts; beginning reading instruction and utilization of literature, drama, and writing.

**EDCI 315 The Young Child in the Social Environment (3)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDHD312; EDHD3 13; EDCI314; EDHD416; and EDHD419A. Corequisites: EDCI351; and EDCI374; and EDHD419B. For early childhood majors only. The child's understanding of people, social roles, society and various cultures; communicative skills and ability to develop satisfying relationships with peers and adults. Related techniques, materials and resources included.



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**EDCI 316 The Teaching of Reading: Early Childhood (3)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDHD312; EDHD313; EDCI314; EDHD416; and EDHD419A. Corequisites: EDCI315; and EDCI351; EDCI374; and EDHD419B. For early childhood education majors only. The fundamentals of developmental reading instruction, including reading readiness, use of experience records, procedures in using basal readers, the improvement of comprehension, teaching reading in all areas of the curriculum, uses of children's literature, the program in word analysis, and diagnostic techniques.

**EDCI 320 Curriculum and Instruction in Secondary Education: Social Studies/ (3)** History Prerequisites: admission to teacher education program; 2.5 GPA; Permission of department. For education majors only. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to social studies education. Includes emphasis on multi-cultural education.

**EDCI 321 Curriculum and Instruction in Secondary Education: Social Studies/ (3)** Geography Prerequisites: admission to teacher education program; 2.5 GPA; permission of department. For education majors only. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and topics pertinent to geography education.

**EDCI 322 Curriculum and Instruction in Elementary Education: Social Studies (3)** Prerequisites: admission to teacher education program; 2.5 GPA; EDCI397; and permission of department. Corequisites: EDCI342; EDCI352; EDCI362; and EDCI372. For elementary education majors only. Curriculum, organization and methods of teaching, evaluation of materials, and utilization of environmental resources. Emphasis on multicultural education. Includes laboratory/field experiences.

**EDCI 330 Introduction to K-12 Foreign Language Methods and Technology (3)** Prerequisites: 2.5 GPA; permission of department. For education majors only. Language acquisition; theory and best practice in teaching reading, listening, speaking and writing; national proficiency standards; authentic classroom assessment; technology and materials; planning lessons and curricula; classroom organization and management; learning disabilities. Focus on key models; content-based foreign language, FLES (foreign language in elementary schools), K-12 FLEX (foreign language exploratory), and immersion. School visitation and observation in elementary and middle school will be arranged.

**EDCI 342 Curriculum and Instruction in Elementary Education: Language (3)** Arts Prerequisites: admission to teacher education program; 2.5 GPA; EDCI397; and permission of department. Corequisites: EDCI322; EDCI352; EDCI362; and EDCI372. For elementary education majors only. Listening, oral communication, functional writing, creative writing, spelling, handwriting, and creative expression. Includes laboratory/field experiences.

**EDCI 350 Curriculum and Instruction in Secondary Education: Mathematics (3)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and six semester hours of 400-level mathematics courses. Corequisite: EDCI355. For education majors only. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics. For pre-service mathematics teachers.

**EDCI 351 The Teaching of Mathematics: Early Childhood (3)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDHD312; EDHD313; EDCI314; EDHD416; EDHD419A. Corequisites: EDCI315; EDCI374; and EDHD419B. For early childhood education majors only. Materials and procedures to help young children develop mathematical meanings and relationships and problem solving skills. Development of an understanding of number, geometric, spatial, and simple logical relationships and problem solving. Includes field experiences.

**EDCI 352 Curriculum and Instruction in Elementary Education: Mathematics (3)** Prerequisites: admission to teacher education program; 2.5 GPA; EDCI397; permission of department. Corequisites: EDCI322; EDCI342; EDCI362; and EDCI372. For elementary education majors only. Materials and procedures to help children sense arithmetical meanings and relationships. Development of an understanding of the number system and arithmetical processes. Includes laboratory/field experiences.

**EDCI 355 Field Experience in Secondary Mathematics Education (1)** Three hours of laboratory per week. Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and six semester hours of 400-level mathematics courses. For education majors only. Practical experience as an aide to a regular secondary mathematics teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

**EDCI 362 Curriculum and Instruction in Elementary Education: Reading (3)** Prerequisites: admission to teacher education program; 2.5 GPA; EDCI397; and permission of department. Corequisites: EDCI322; and EDCI342; and EDCI352; and EDCI372. For elementary education majors only. Provide future elementary school teachers with the understandings and strategies to plan effective reading instruction. Participants will: a) learn a variety of developmentally appropriate word recognition strategies; b) learn a variety of developmentally appropriate comprehension strategies to enhance student understanding and interpretation of text; c) learn how to implement a balanced literacy program; d) learn appropriate early identification and intervention strategies to assist students with different learning styles, and emerging literacy; and e) learn how to establish and maintain an organized classroom environment that fosters interests, motivation, and positive attitudes/perceptions about all aspects of literacy.

**EDCI 370 Curriculum and Instruction in Secondary Education: Science (3)** Prerequisites: 2.5 GPA; permission of department For education majors only. For preservice science teachers. Preparing objectives, planning lessons, selecting and organizing for classroom and laboratory instruction, determining appropriate teaching methods, selecting textbooks and other instructional materials, and measuring and evaluating student achievement. Includes laboratory/field experiences.

**EDCI 371 Computers in the Science Classroom and Laboratory (2)** Prerequisites: admission to teacher education program; 2.5 GPA; EDCI370. Corequisites: EDCI470 and EDCI471. Fundamentals of microcomputer use in science classrooms and laboratories.

**EDCI 372 Curriculum and Instruction in Elementary Education: Science (3)** Prerequisites: admission to teacher education program; 2.5 GPA; EDCI397; and permission of department. Corequisites: EDCI322; EDCI342; EDCI352; EDCI362. For elementary education majors only. Objectives, methods, materials and activities for teaching science in the elementary school; emphasis on teaching strategies which help children learn the processes and concepts of science. Includes laboratory/field experiences.

**EDCI 373 Practicum in Ceramics (3)** Six hours of laboratory per week. For art education majors only. 3 semester hours. Junior standing. Not open to students who have completed a ceramic course. Credit will be granted for only one of the following: EDCI273 or EDCI373. Formerly EDCI 273. A lecture/studio format designed to introduce the use of clay and ceramics in a wide variety of educational settings.

**EDCI 374 The Teaching of Science: Early Childhood (3)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDHD312; EDCI314; EDHD416; EDHD419A. Corequisites: EDHD313; EDCI315; EDCI351; and EDHD419B. For early childhood education majors only. Objectives, materials, and activities for teaching science to young children. Includes classroom and field experience.

**EDCI 375 Field Experience in Science Education (1)** Corequisite: EDCI470. For Science Education Majors Only. This field experience course is designed to provide prospective teachers with knowledge of theory and best school practice relevant to effective pedagogy, current educational goals, and trends in educational assessment in a public school environment. Topics includes planning, instructional delivery, diversity and individual differences, classroom management, technology, and inclusion of students with special needs.

**EDCI 380 Curriculum and Instruction: Elementary (3)** Focuses on developmental needs at various age levels, with emphasis upon the activities, materials and methods by which educational objectives are attained.

**EDCI 385 Computers for Teachers (3)** Prerequisites: admission to teacher education program; and 2.5 GPA. For education majors only. A first-level survey of instructional uses of computers, software, and related technology for preservice teachers.

**EDCI 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**EDCI 390 Principles and Methods of Secondary Education (3)** Prerequisites: admission to teacher education program; and 2.5 GPA. For education majors only. Principles and methods of teaching in junior and senior high schools. Instructional problems common to all of the subject fields, considered in relation to the needs and interests of youth, social problems and the central values of society.

**EDCI 397 Principles and Methods of Teaching in Elementary Schools (3)** Prerequisites: admission to teacher education program and 2.5 GPA. For education majors only. Teaching strategies, classroom interactive techniques, and procedures for planning and evaluating instruction in elementary schools. Emphasis on principles of effective instruction, classroom management, and adaptation of instruction for various student populations.

**EDCI 400 Field Experience in Art Education (1)** Four hours of laboratory per week. Prerequisites: permission of department. For Art Education majors. Practical classroom experience in teaching/evaluating/exhibiting the products of art lessons.

**EDCI 401 Student Teaching in Elementary School: Art (4-8)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and EDCI300. For art education majors only.

**EDCI 402 Student Teaching in Secondary Schools: Art (2-8)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI300. For art education majors only.

**EDCI 403 Teaching Art Criticism and Aesthetics (3)** Three hours of discussion/recitation per week. For art education majors only. Prerequisite: admission to teacher education program; 2.5 GPA; ARTH200 and ARTH201. Introduction to the teaching of art criticism and aesthetics in K-12 art education programs. Trips to galleries and museums.

**EDCI 404 Student Teaching Seminar: Art Education (3)** Prerequisite: Admission to Teacher Education Program; 2.5 GPA; and EDCI300, EDCI400, EDCI405. Corequisite: EDCI401 and EDCI402. For art education majors only. An analysis of teaching theories, strategies, and techniques in the student teaching experience.

**EDCI 405 Disciplined-Based Art Education Methods II (3)** Corequisite: EDCI400. For art education majors only. This course will focus on the methods, strategies and techniques for researching, planning, teaching, and evaluating art for grades K-12 in today's schools. A variety of approaches to art history, art criticism, aesthetics, art production and cross curricular connections as well as strategies will be explored. These will provide the prospective art teacher with the fundamentals for developing a balanced qualitative art program and running an effective and safe art classroom/studio. Emphasis is placed on principles of effective discipline-based instruction; classroom management; evaluation/assessment; multiculturalism/diversity; and students with special needs.

**EDCI 406 Technology and Two-Dimensional Art (3)** Two hours of laboratory and two hours of discussion/recitation per week. Prerequisite: admission to teacher education program; 2.5 GPA; ARTT210; and permission of department. Junior standing. A discussion/studio format used to develop skills, materials, resources and education strategies for using technology and two-dimensional art in K-12 programs.

**EDCI 407 Practicum in Art Education: Three-Dimensional (3)** For pre-art education and art education majors only. A lecture-studio course to develop skills, material resources, and educational strategies for three-dimensional projects in school settings.

**EDCI 416 Curriculum and Instruction in Secondary Education: English Speech Theatre (3)** Prerequisites: Admission to teacher education program; 2.5 GPA; and permission of department. Credit will be granted for only one of the following: EDCI340 or EDCI416. Formerly EDCI 340. An introduction for prospective middle and secondary English teachers into the basic issues, concepts, orientations, and processes that shape the teaching of English for diverse students in schools. Candidates explore their own perspectives in relation to local and national trends and develop basic teaching understanding and skills through on-campus seminars, teaching laboratory experiences, and guided field experiences.

**EDCI 417 Bases for English Language Instruction (3)** Two hours of lecture and 1/2 day field placement per week. Prerequisite: admission to teacher education program; EDHD413; and EDHD420. Provides students with knowledge of current theory, research, and pedagogy focused on the teaching of English to English language learners. Topics include morphology, syntax, semantics, vocabulary, pragmatics, arguments, discourse structure, and English language usage. Exceptional student, inclusion, and diversity issues will be considered.

**EDCI 420 Student Teaching Seminar in Secondary Education: Social Studies (3)** Prerequisites: admission to teacher education program; 2.5 GPA. Corequisite: EDCI421 or EDCI422. An analysis of teaching theories, strategies, and techniques in the student teaching experience.

**EDCI 421 Student Teaching in Secondary Schools: Social Studies/History (12)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department. Corequisite: EDCI420.

**EDCI 422 Student Teaching in Secondary Schools: Social Studies/Geography (12)** Prerequisite: EDCI321. Corequisite: EDCI420.

**EDCI 424 Social Studies in the Elementary School (3)** Curriculum, organization and methods of teaching, evaluation of materials and utilization of environmental resources. Emphasis on multicultural education. Primarily for in-service teachers, grades 1-6.

**EDCI 425 Social Studies and Multicultural Education (3)** Seminar in general social science principles applicable to multicultural education. Cultural experiences arranged for each participant.

**EDCI 426 Materials and Resources in Social Studies (3)** Prerequisite: permission of department and 2.5 GPA. The course will emphasize the identification, appropriate selection, implementation and assessment of materials and resources that promote social studies instruction that is theory based for multiple settings.

**EDCI 427 Curriculum and Instruction in Secondary Education: Social Studies (3)** and History Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDHD413 and EDHD420. Corequisite: EDCI428. For education majors only. Credit will be granted for only one of the following: EDCI320 or EDCI427. Formerly EDCI 320. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to social studies education. Includes emphasis on multi-cultural education.

**EDCI 428 Field Experience in Secondary Social Studies Teaching (1)** Three hours of laboratory per week. Prerequisites: admission to teacher education program; 2.5 GPA; and permission of department. Corequisite: EDCI427. For education majors only. Practical experience as an aide to a regular social studies teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

**EDCI 430 Student Teaching Seminar in Secondary Education: Foreign Language (3)** Prerequisites: admission to teacher education program; 2.5 GPA; and EDCI330. Corequisite: EDCI431. An analysis of teaching theories, strategies and techniques in the student teaching experience.

**EDCI 431 Student Teaching in Secondary Schools: Foreign Language (12)** Prerequisites: admission to teacher education program; and 2.5 GPA; and permission of department; and EDCI330. Corequisite: EDCI430.

**EDCI 432 Foreign Language Methods in the Elementary School (3)** Methods and techniques for developmental approach to the teaching of modern foreign languages in elementary schools. Development of oral-aural skills in language development.

**EDCI 433 Advanced K-12 Foreign Language Methods and Technology (3)** Prerequisites: EDCI330, EDHD413, EDHD420 and permission of department. Corequisite: EDCI438. For EDCI majors only. Teaches advanced best practices for effective foreign language instruction. Topics include: using authentic assessment and materials, applying national standards, teaching writing and culture, motivating students, providing strategy instruction, infusing technology, preparing for K-12 employment, and creating a professional portfolio. Field experience (in co-requisite EDCI438) focuses on middle and high school.

**EDCI 438 Field Experience in Second Language Education (1)** Four hours of laboratory per week. Prerequisites: permission of department. Corequisite: EDCI330. For Second Language Education majors only. Repeatable to 3 credits if content differs. Practical experience as an aide to a regular foreign language teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

**EDCI 440 Student Teaching Seminar in Secondary Education: English, Speech, (1)** Theatre Prerequisites: admission to teacher education program; 2.5 GPA; EDCI417. Corequisite: EDCI441. An analysis of teaching theories, strategies and techniques in relation to the student teaching experience.

**EDCI 441 Student Teaching in Secondary Schools: English (12)** Prerequisites: admission to teacher education program; and EDCI417. Corequisite: EDCI440. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

**EDCI 442 Student Teaching in Secondary Schools: Speech/English (12)** Prerequisites: admission to teacher education program; and EDCI417. Corequisite: EDCI440. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

**EDCI 443 Literature for Children and Youth (3)** For elementary education and pre-elementary education majors only. Analysis of literary materials for children and youth. Timeless and ageless books, and outstanding examples of contemporary publishing. Evaluation of the contributions of individual authors, illustrators and children's book awards.

**EDCI 445 Language Arts in the Elementary School (3)** Teaching of spelling, handwriting, oral and written expression and creative expression. Primarily for in-service teachers, grades 1-6.

**EDCI 446 Methods of Teaching English, Speech, Theatre in Secondary Schools (3)** Prerequisites: permission of department. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to English, speech, and drama education. For in-service teachers.

**EDCI 447 Field Experience in English, Speech, Theatre Teaching (1)** Prerequisites: admission to teacher education program; 2.5 GPA. Corequisite: EDCI417. For education majors only. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

**EDCI 448 Student Teaching in Secondary Schools: Theatre/English (12)** Prerequisites: admission to teacher education program; and EDCI417. Corequisite: EDCI440. Practical experience as an aide to a regular English, speech or drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

**EDCI 450 Student Teaching Seminar in Secondary Education: Mathematics (1)** Prerequisites: admission to teacher education program; 2.5 GPA; EDCI457; and EDCI455 or EDCI651. Corequisite: EDCI451 and EDCI474. An analysis of teaching theories, strategies and techniques in the student teaching experience.

**EDCI 451 Student Teaching in Secondary Schools: Mathematics (12)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department. Corequisite: EDCI450.

**EDCI 455 Methods of Teaching Mathematics in Secondary Schools (3)** Prerequisite: 2 semesters of calculus. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and topics pertinent to mathematics education.

**EDCI 456 Teaching Mathematics to the Educationally Handicapped (3)** Prerequisites: EDSP331; EDSP332; EDSP333; EDSP443; and MATH210 or permission of department. Development of skills in diagnosing and identifying learning disabilities in mathematics and planning for individualized instruction. Clinic participation required.

**EDCI 457 Teaching and Learning Middle School Mathematics (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: admission to teacher education program or permission of department; 2.5 GPA; and permission of department for post-baccalaureate students. Methods of teaching and assessing the middle school mathematics curriculum. Understanding the conceptual difficulties students have in moving from whole numbers to rational numbers, additive thinking to multiplicative thinking, and arithmetic to algebra. Lesson planning and selection of technology and other materials are applied in the context of supervised tutoring of students having difficulty in middle school mathematics.

**EDCI 460 Student Teaching: Elementary/Middle (15)** Prerequisites: EDCI322; EDCI342; EDCI352; EDCI362; and EDCI372. For Elementary Education majors only. A field experience with eight weeks of student teaching at the elementary level and eight weeks at the middle school level.

**EDCI 461 Materials for Creating Skilled and Motivated Readers (K-6) (3)** Prerequisite: permission of department. For Elementary Education majors only. Junior standing. Selecting, evaluating, and using a variety of materials to create skilled and motivated readers in the elementary grades. Topics include nonfiction, fiction, basal readers, effective classroom libraries, software, and internet resources for teaching reading, and strategies for motivating children to read.

**EDCI 462 Reading in the Elementary School (3)** Developmental reading instruction, including emergent literacy, literature-based and basal reader programs. Primarily for in-service teachers, grades 1-8.

**EDCI 463 Reading in the Secondary School (3)** Prerequisites: admission to teacher education program; and 2.5 GPA; or permission of department required for post-baccalaureate students. For education majors only. Provides secondary school teachers with understanding the need for and approaches to teaching students to read and learn from content area texts.

**EDCI 464 Reading Instruction and Diagnosis Across Content Areas (3)** Prerequisite: EDCI362 or permission of department for graduate students. This course will examine reading assessment theory, reading assessment materials, and reading assessment procedures. Students will learn to use a variety of reading assessments in valid reliable manner to make ongoing instructional changes, and to maintain successful classroom practice. The course will also examine our knowledge and beliefs related to reading assessment, students, and schooling.

**EDCI 465 Language, Culture, and Education (3)** Prerequisite: LING200 or permission of department. Survey of sociolinguistic and psycholinguistic perspectives for the study of language and education; examination of pragmatics, speech act theory, and dimensions of language variation (dialects, codes, and registers); implications for educational research and instructional practice.

**EDCI 466 Literature for Adolescents (3)** Prerequisites: admission to teacher education program; 2.5 GPA. permission of department required for post-baccalaureate students. For education majors only. Reading and analysis of fiction and nonfiction; methods for critically assessing quality and appeal; current theory and methods of instruction; research on response to literature; curriculum design and selection of books.

**EDCI 467 Teaching Writing (3)** Prerequisite: permission of department. Sources and procedures for developing curriculum objectives and materials for teaching written composition; prewriting, composing, and revision procedures; contemporary directions in rhetorical theory; survey of research on composition instruction.

**EDCI 470 Practices in Secondary School Science Teaching (3)** Prerequisites: admission to teacher education program; 2.5 GPA; and EDCI 370. Corequisites: EDCI375. Analysis of teaching theories, strategies and techniques in student teaching.

**EDCI 471 Student Teaching in Secondary Schools: Science (12)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; and EDCI370. Corequisites: EDCI371 and EDCI470.

**EDCI 472 Methods of Teaching Science in Secondary Schools (3)** Prerequisite: permission of department. Methods for classroom and laboratory instruction, determining appropriate teaching methods, selecting instructional materials, evaluating student achievement. Includes lab and field experience. For in-service teachers.

**EDCI 473 Environmental Education (3)** Two hours of lecture and three hours of laboratory per week. An interdisciplinary course covering the literature, techniques and strategies of environmental education.

**EDCI 474 Inclusion, Diversity, and Professionalism in Secondary Education (2)** Prerequisite: admission to teacher education. Corequisite: enrolled in student teaching/certification area. For secondary education majors only. Cross disciplinary capstone course for Secondary Education majors. Discussion and analysis of critical issues relevant to teaching: inclusion, diversity, professionalism, English language learners, school politics, social justice, school-community relations, and parent engagement.

**EDCI 475 Science in the Elementary School (3)** Objectives, methods, materials, and activities for teaching science in the elementary school. Primarily for in-service teachers, grades 1-6.

**EDCI 476 Teaching Ecology and Natural History (3)** An introduction to the teaching of natural history in the classroom and in the field. Ecological principles; resources and instructional materials; curricular materials. Primarily for teachers, park naturalists, and outdoor educators.

**EDCI 477 Applications of Technology to Societal Problems (3)** Junior standing. A study of alternative solutions of a technological nature with respect to such areas as housing, transportation, energy, communications, production and waste disposal, water development and pollution control.

**EDCI 481 Student Teaching: Elementary (12)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI322; and EDCI342; EDCI352; EDCI362; and EDCI372. Corequisite: EDCI464.

**EDCI 484 Student Teaching in Elementary School: Music (4-6)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; MUED411; MUED420; MUED470; MUED471; and MUED472. Corequisite: EDCI494. Fulfills elementary teaching requirements in K-12 music education programs.

**EDCI 485 Student Teaching in Elementary School: Physical Education (4-8)** For EDCI majors only. Fulfills elementary teaching requirements in K-12 physical education programs.

**EDCI 486 Supervision of Student Teachers (1-3)** Designed for in-service teachers. The development and refinement of skills in observing, evaluating and conducting conferences with student teachers. Clinical supervision and cooperative problem solving. Required by some school systems for supervision of student teachers.

**EDCI 488 Selected Topics in Teacher Education (1-3)** Prerequisite: EDCI major or permission of department. Repeatable to 6 credits if content differs.

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**EDCI 489 Field Experiences in Education (1-4)** Prerequisite: permission of department. Corequisite: EDCI497. Repeatable to 4 credits.

**EDCI 491 Student Teaching in Secondary Schools: Health (12)** For EDCI majors only.

**EDCI 494 Student Teaching in Secondary Schools: Music (2-8)** For EDCI majors only.

**EDCI 495 Student Teaching in Secondary Schools: Physical Education (2-8)** For EDCI majors only.

**EDCI 497 The Study of Teaching (3)** Prerequisite: EDCI481. Corequisite: EDCI489. Identification and examination of learner and teacher outcome variables related to teaching systems, methods, and processes. Methods of conducting classroom research.

**EDCI 498 Special Problems in Teacher Education (1-6)** Prerequisite: permission of department. For EDCI majors only. Repeatable to 6 credits. Individual study of approved problems.

**EDCI 499 Workshops, Clinics, and Institutes (1-6)** Repeatable to 6 credits. The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

### EDCP – Education Counseling and Personnel Services

**EDCP 108 College and Career Advancement: Concepts and Skills (1)** Repeatable to 3 credits if content differs. Knowledge and skills designed to enhance college as a learning experience or preparation for life.

**EDCP 310 Peer Counseling Theory and Skills (3)** The theories and skills of peer helping relationships. Counseling theories and skills at a level appropriate for students seeking basic level training for use in peer counseling settings.

**EDCP 312 Multi-Ethnic Peer Counseling (3)** Prerequisite: undergraduate status. Sophomore standing. Formerly EDCP 310A. Knowledge, skills, and attitude to function as peer helpers of Multi- Ethnic students.

**EDCP 317 Introduction to Leadership (3)** Application of leadership theories, concepts, and skills. Completion of personal and leadership self-assessments, values exploration, and leadership skill practice through course activities.

**EDCP 318 Applied Contextual Leadership (3)** Three hours of lecture and five hours of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Course will utilize experiential learning opportunities to develop and apply the knowledge and skills of leadership into specific contexts of leadership practice.

**EDCP 325 Substance Use and Abuse in American Society (3)** Incidence, etiology, effects and management of substance use and abuse from perspective of the individual, the family, and society.

**EDCP 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**EDCP 411 Principles of Mental Health (3)** Prerequisite: nine semester hours in the behavioral sciences or permission of department. Mechanisms involved with personal adjustment, coping skills, and the behaviors that lead to maladjustment.

**EDCP 416 Theories of Counseling (3)** An overview and comparison of the major theories of counseling, including an appraisal of their utility and empirical support.

**EDCP 417 Advanced Leadership Seminar (3)** Prerequisite: EDCP317 or equivalent; permission of department. Students will analyze and synthesize the concept of leadership using cultural, ethical, sociological, historical perspectives. Exploration and reflection of personal values, decision making, in-depth analysis on various leadership activities. Theories will be emphasized.

**EDCP 418 Special Topics in Leadership (3)** Prerequisite: EDCP317 or equivalent; permission of department. Repeatable to 6 credits if content differs. The special topics and leadership course will address a single topic related to leadership through the semester. In-depth study and analysis on the topic will be the basis for the course. Topics include gender and leadership, ethics and leadership, and culture and leadership. Leadership will serve as the foundation in the course.

**EDCP 420 Advanced Topics in Human Diversity and Advocacy (3)** One hour of lecture and two hours of discussion/recitation per week. Prerequisite: permission of department. Recommended: EDCP310. This course will build upon students' knowledge of diversity in American society and will examine contemporary topics related to multiculturalism in educational and community contexts as well as strategies for advocacy in such venues. This course fulfills CORE requirements in diversity.

**EDCP 460 Introduction to Rehabilitation Counseling (3)** Survey of principles and practices involved in the vocational rehabilitation of persons with disabilities.

**EDCP 461 Psycho-Social Aspects of Disability (3)** Theory and research concerning disability, with emphasis on crisis theory, loss and mourning, handicapped as a deviant group, sexuality and functional loss, attitude formation, dying process and coping. Implications for counseling and the rehabilitation process.

**EDCP 462 Disability in American Society (3)** Prerequisite: undergraduate status. 30 semester hours. Critical examination of the history of discrimination and analysis of current policies toward people with severe physical and mental disabilities.

**EDCP 470 Introduction to Student Personnel (3)** Prerequisite: permission of department. A systematic analysis of research and theoretical literature on a variety of major problems in the organization and administration of student personnel services in higher education. Included will be discussion of such topics as the student personnel philosophy in education, counseling services, discipline, housing, student activities, financial aid, health, remedial services, etc.

**EDCP 489 Field Experiences in Counseling and Personnel Services (1-4)** Prerequisite: permission of department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

**EDCP 498 Special Problems in Counseling and Personnel Services (1-3)** Prerequisite: permission of department. Available only to major students who have formal plans for individual study of approved problems.

**EDCP 499 Workshops, Clinics, Institutes (1-6)** Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the Department of Counseling and Personnel Services (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing; clinical experiences in counseling and testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups.

### EDHD – Education, Human Development

**EDHD 210 Foundations of Early Childhood Education (3)** Corequisite: EDHD220. An overview of historical, philosophical, psychological, and contemporary influences on the field of early childhood education.

**EDHD 220 Exploring Teaching in Early Childhood Education (3)** Corequisite: EDHD210. Practicum with preschool children at the Center for Young Children, University lab school, and other preschools. Students reflect on personal strengths, identify areas of growth, and examine their predisposition to teach.

**EDHD 222 Literature in the Early Childhood Classroom (3)** For early childhood education majors only. Credit will be granted for only one of the following: EDCI443A or EDHD222. Introduces students to the realm of literature for young children. Through studying, reading, listening to and using books and poems, students develop an understanding about qualities in literature that are meaningful to children.

**EDHD 230 Human Development and Societal Institutions (3)** Development of the individual in the context of relationships with the formal and informal institutions of society. An examination of various aspects of development from the broad perspective of the social sciences.

**EDHD 285 Designing Multimedia Computer Environments for Learners (3)** For early childhood majors only. Freshman standing. A focus on the application of new computer technologies for learners in an educational setting. Topics to be explored: understanding the learner as a technology user, defining learning outcomes to be supported by technology, differing approaches to the technology design process and methods of technology integration in the classroom.

**EDHD 306 Research Methods in Human Development (3)** Addresses the scientific concepts and principles central to the study of human behavior and development. Students will learn about basic research methods in studying human behavior in developmental context and will participate in experiential activities, such as conducting observations and collecting self-report data. Major themes: goals of developmental research, fundamental research designs, types of measurement, elements of good scientific writing, and ethical issues in the study of human development.

**EDHD 312 Professional Development Seminar in Early Childhood Education (3)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI280. For early childhood education majors only. Credit will be granted for only one of the following: EDHD312 or EDCI312. Formerly EDCI 312. Affective and integrative functions of teaching young children; planning daily programs; organizing the learning environment; developing the curriculum; clarifying values; guiding behavior; diagnosing and evaluating; and working with parents and other adults.

**EDHD 313 Creative Experiences for Young Children (3)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDCI280. For early childhood majors only. Credit will be granted for only one of the following: EDHD313 or EDCI313. Formerly EDCI 313. Provides preservice teachers with an understanding of the current research on the development of creativity and integration of the arts into an early childhood classroom. Resident artists from the Wolf Trap Company will give demonstration lesson in music, art, movement and dance.

**EDHD 314 Reading in Early Childhood Classroom: Instructions and Materials (3)** Part I For early childhood majors only. This course introduces early childhood students to current research and methods on teaching reading.

**EDHD 315 Reading in Early Childhood Classroom: Instruction and Materials (3)** Part II Prerequisite: EDHD314. For early childhood majors only. This course builds on the theories and teaching strategies of EDHD314. Students will focus on teaching of reading and writing to primary grade students.

**EDHD 319 Selected Topics in Human Development (3)** Repeatable to 6 credits if content differs. Selected topics in human development in relation to contemporary culture.

**EDHD 320 Human Development Through the Life Span (3)** Central concepts related to parameters of human development, individual and social, which arise throughout the life span. Continuity and change within the developing individual.

**EDHD 321 The Young Child as Scientist (2)** Prerequisites: EDHD424, EDHD419, EDHD313, EDHD314, EDSP470. Corequisites: EDHD427, EDHD322, EDHD323, EDHD315, EDHD435. For early childhood majors only. Senior standing. Provides theoretical and practical knowledge for teaching science in early childhood classrooms. Appropriate teaching strategies and materials of instruction are presented for diverse settings. Includes field experience.

**EDHD 322 The Young Child as Mathematician (3)** Prerequisites: EDHD424, EDHD419, EDHD313, EDHD314, EDSP470. Corequisites: EDHD427, EDHD321, EDHD323, EDHD315, EDHD435. For early childhood majors only. Senior standing. Engages early childhood education majors in mathematics as a creative process and dynamic way of thinking. Throughout this process students will acquire the pedagogical knowledge important to teaching mathematics in grades pre-K through 3. Includes field experience.

**EDHD 323 Children Study Their World (2)** Prerequisites: EDHD424, EDHD419, EDHD313, EDHD314, EDSP470. Corequisites: EDHD427, EDHD321, EDHD322, EDHD315, EDHD435. For early childhood majors only. Senior standing. Provides a theoretical framework for pre-service teachers to understand and implement a developmentally appropriate social studies curriculum. The focus will be on methods of implementing theories of child development and curriculum, which foster higher level thinking skills in young children. Includes field experience.

**EDHD 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**EDHD 400 Introduction to Gerontology (3)** Multidisciplinary survey of the processes of aging. Physiological changes, cultural forces, and self-processes that bear on quality of life in later years. Field study of programs, institutions for elderly, individual elders, their families and care providers.

**EDHD 401 Promoting Optimal Aging (3)** Prerequisite: EDHD320, or EDHD400, or permission of department. Also offered as EDHD641. Credit will be granted for only one of the following: EDHD401 or EDHD641. Theoretical, research, and applied issues related to optimal aging from psychological, biological, and societal perspectives. Group or individual projects involving direct field experiences.

**EDHD 410 The Child and the Curriculum: Early Childhood (3)** Credit will be granted for only one of the following: EDHD410 or EDCI410. Formerly EDCI 410. Relationship of the nursery school curriculum to child growth and development. Recent trends in curriculum organization; the effect of environment on learning; readiness to learn; and adapting curriculum content and methods to maturity levels of children. Primarily for in-service teachers, nursery school through grade 3.

**EDHD 411 Child Growth and Development (3)** Theoretical approaches to and empirical studies of physical, psychological and social development from conception to puberty. Implications for home, school and community.

**EDHD 413 Adolescent Development (3)** Adolescent development, including special problems encountered in contemporary culture. Observational component and individual case study.

**EDHD 415 Social Competence in Young Children (3)** For early childhood majors only. Junior standing. Students will discuss issues and topics relevant to the study of children's social competence, peer interactions, relationships, and groups. Includes field experience.

**EDHD 416 Scientific Concepts in Human Development (3)** Guided reading and observation of students through the school year. Impact of family, school, society, and peer group on the individual. Analysis of field data in terms of behavioral patterns.

**EDHD 417 Laboratory in Behavior Analysis (3)** Prerequisite: EDHD416. Continuation of analysis of field observations; emphasis on cognitive processes, motivation, self-concept, attitudes and values.

**EDHD 419 Human Development and Learning in School Settings (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Advanced study of human development and learning in different phases of school program over a period of time.

**EDHD 420 Cognitive Development and Learning (3)** Prerequisite: either EDHD300, EDHD320, EDHD411, PSYC355, PSYC341 or permission of department. Current developmental theories of cognitive processes such as language, memory, and intelligence and how differences in cognitive level (infancy through adolescence) mediate learning of educational subject matters.

**EDHD 421 Student Teaching: Preschool (4)** Prerequisites: admission to teacher education program; 2.5 GPA; permission of department; EDHD312; EDHD313; EDHD419A; EDHD419B. For early childhood education majors. Credit will be granted for only one of the following: EDHD421 or EDCI411. Formerly EDCI 411.

**EDHD 422 Students Teaching: Kindergarten (4)** Prerequisites: admission to teacher education program; and 2.5 GPA; and permission of department; and EDHD312; and EDHD313; and EDHD419A; and EDHD419B. For early childhood education majors only. Credit will be granted for only one of the following: EDHD422 or EDCI412. Formerly EDCI 412.

**EDHD 423 Student Teaching: Primary Grades (8)** Prerequisites: EDHD321, EDHD322, EDHD323, EDHD435. Corequisite: EDCI464. Credit will be granted for only one of the following: EDHD423 or EDCI413. Formerly EDCI 413.

**EDHD 424 Culture and Community Perspectives: The Diverse World of the (3)** Child Corequisites: EDHD314, EDHD419, EDHD313, EDSP470. For early childhood majors only. Junior standing. Explores the development of the young child in the context of family and community, with particular emphasis on the impact of state, federal and school system policy on the child's world.

**EDHD 425 Language Development and Reading Acquisition (3)** Two hours of lecture and one hour of discussion/recitation per week. This course focuses on young children's language development and the relationship between language and reading acquisition. Students will learn: concepts central to language development; language achievements at different ages; concepts of emergent literacy; models of reading acquisition and skilled reading.

**EDHD 426 Cognition and Motivation in Reading: Reading in Content Areas (3)** I Students preparing for secondary teaching will learn the cognitive and motivational aspects of reading and learning from text in subjects of literature, science, history and mathematics. Different structured approaches to using text for content learning are presented. Classroom contexts that enable students to engage productively with diverse texts and internet resources are identified.

**EDHD 427 Constructing and Integrating the Early Childhood Curriculum (3)** Prerequisites: EDHD424, EDHD313, EDHD314, EDSP470. Corequisites: EDHD323, EDHD321, EDHD322, EDHD315, EDHD435. For early childhood majors only. Senior standing. Explores the world from the child's perspective and constructs curriculum based on cognition, learning, and children's experiences. The integrated curriculum is the overarching framework for this course. Includes field experience.

**EDHD 430 Adolescent Violence (3)** Prerequisite: PSYC100 or permission of department. Examines the roots of violence among adolescents and the extent to which this constitutes a problem in various settings. Research studies on its origins, prevention and intervention and implications for social policy are examined.

**EDHD 432 Student Teaching Pre-K-3 (12)** Prerequisites: EDHD427, EDHD321, EDHD322, EDHD323, EDHD435. Corequisite: EDCI464 For Early Childhood majors only. Senior standing. Not open to students who have completed EDHD421, EDHD422 and EDHD423. Credit will be granted for only one of the following: EDHD421, EDHD422, and EDHD423; or EDHD432.

**EDHD 435 Effective Components of the Early Childhood Classroom (3)** Prerequisites: EDHD314, EDHD424, EDHD419, EDHD313, EDHD314, EDSP470. Corequisites: EDHD427, EDHD321, EDHD322, EDHD323, EDHD315. For early childhood majors only. Senior standing. Explores three topics integral to effective, child-centered early childhood classrooms: assessment, classroom management and parent involvement. Includes field experience.

**EDHD 445 Guidance of Young Children (3)** Prerequisite: PSYC100 or permission of department. Practical aspects for helping and working with children, drawing on research, clinical studies, and observation. Implications for day care and other public issues.

**EDHD 460 Educational Psychology (3)** Prerequisite: PSYC100 or permission of department. Application of psychology to learning processes and theories. Individual differences, measurement, motivation, emotions, intelligence, attitudes, problem solving, thinking and communicating in educational settings. (May not be substituted for EDHD300 by students in professional teacher education programs.)

**EDHD 489 Field Experiences in Education (1-4)** Prerequisite: permission of department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

**EDHD 497 Designing Multimedia Computer Environments for Learners (3)** For early childhood majors only. Freshman standing. Also offered as EDHD285. Credit will be granted for only one of the following: EDHD285 or EDHD497. Focuses on how new computer technologies for learners can be created and used in an educational setting. The following topics will be explored: understanding the learner as a technology user, defining learning outcomes to be supported by technology, differing approaches to the technology design process and methods of technology integration in the classroom.

**EDHD 498 Special Problems in Education (1-3)** Prerequisite: permission of department. Available only to students who have definite plans for individual study of approved problems.

**EDHD 499 Workshops, Clinics, and Institutes (1-6)** Repeatable to 6 credits. The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

## EDMS – Measurement, Statistics, and Evaluation

**EDMS 410 Classroom Assessment (3)** Junior standing. Developing and using classroom assessments, including tests, performance assessments, rating scales, portfolios, observations and oral interactions; basic psychometric statistics; standard setting; grading; communicating assessment information; testing ethics; locating and evaluating measures; program evaluation and classroom research; assessments used for educational policy decisions.

**EDMS 451 Introduction to Educational Statistics (3)** Junior standing. Introduction to statistical reasoning; location and dispersion measures; computer applications; regression and correlation; formation of hypotheses tests; t-test; one-way analysis of variance; analysis of contingency tables.

**EDMS 465 Algorithmic Methods in Educational Research (3)** Prerequisite: EDMS451 or equivalent. Use of the computer as a tool in educational research. Instruction in a basic scientific computer source language as well as practical experience in program writing for solving statistical and educational research problems.

**EDMS 489 Field Experiences in Measurement and Statistics (1-4)** Prerequisite: permission of department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

**EDMS 498 Special Problems in Measurement and Statistics (1-3)** Prerequisite: permission of department. Repeatable to 6 credits. Available only to education majors who have formal plans for individual study of approved problems.

## EDPL – Education Policy and Leadership

**EDPL 201 Education in Contemporary American Society (3)** An examination of the relationship between education and the social environment in contemporary American society. Issues of equality or equal opportunity, individual and cultural differences, education outside of schools, the control of education, and the future of education.

**EDPL 210 Historical and Philosophical Perspectives on Education (3)** Formerly EDPA 210. An examination of illustrative historical and philosophical examples of the interplay of ideas and events in the shaping of educational aims and practices from ancient cultures to modern technological societies.

**EDPL 288 Special Problems in Education (1-6)** Prerequisite: permission of department. Formerly EDPA 288. Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.

**EDPL 301 Foundations of Education (3)** Formerly EDPA 301. Social context of education and conflicts over philosophies, values, and goals that are reflected in educational institutions in our pluralistic society. Helps teachers become reflective, critical thinkers about the social and philosophical issues they face and the choices they make.

**EDPL 338 Teaching and Learning about Cultural Diversity through Intergroup (1)** Dialogue Repeatable to 6 credits if content differs. Formerly EDPL 288. Engages students, from one or more cultural identity groups, in facilitated dialogue about the similarities and differences of experience that exist within a group and/or between and across groups. The goal of intergroup dialogue is for students to develop comfort with, and skill for, discourse on difficult topics toward the end of fostering positive, meaningful, and sustained cross-group relationships. Whereas in debate, students learn to listen to gain advantage, in intergroup dialogue, students learn to listen to gain understanding. In so doing, students develop increased multicultural interaction facility, heightened intergroup awareness and sensitivity, and greater commitment to civic engagement.

**EDPL 401 Educational Policy, and Social Change (3)** Junior standing. Formerly EDPA 401. An examination of education policy in relation to the social environment and change. Contemporary education and social issues are examined, including technology as a complex force which influences social change. This is a Social Foundations course.

**EDPL 488 Special Topics in Education Policy and Administration (1-3)** Prerequisite: permission of department. Repeatable to 6 credits. Formerly EDPA 488. Special and intensive treatment of current topics and issues in education policy and administration.

**EDPL 489 Field Experiences in Education (1-4)** Prerequisite: permission of department. Formerly EDPA 489. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

**EDPL 498 Special Problems in Education (1-3)** Prerequisite: permission of department. Formerly EDPA 498. Available only to students who have definite plans for individual study of approved problems.

**EDPL 499 Workshops, Clinics, and Institutes (1-6)** Repeatable to 6 credits. Formerly EDPA 499. The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals, and supervisors.

## EDSP – Education, Special

**EDSP 210 Introduction to Special Education (3)** Class Standing: Freshman or Sophomore. Not open to students who have completed more than 59 credits. Characteristics and needs of individuals receiving special education and related services. Current issues and practices in special education.

**EDSP 288 Special Topics in Teacher Education (1-3)** Prerequisite: major in education or permission of department. Repeatable to 6 credits if content differs.

**EDSP 298 Special Problems in Teacher Education (1-6)** Prerequisite: permission of department. Available only to freshmen and sophomore education majors who have definite plans for individual study of approved problems relative to their preparation for teaching. Credit according to extent of work.

## 192 Approved Courses

**EDSP 376 Fundamentals of Sign Language (3)** Receptive and expressive skills in American Sign Language. Examination of the causes of deafness, characteristics of deaf education, and aspects of the culture of the deaf community.

**EDSP 386 Experiential Learning (3-6)** Prerequisite: learning proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**EDSP 400 Functional Assessment and Instruction in Special Education (3)** For EDSP or 0808P majors only. 3 semester hours. Also offered as EDSP602. Credit will be granted for only one of the following: EDSP400 or EDSP602. Functional assessment procedures and instructional methods for students with severe disabilities from birth to adulthood.

**EDSP 402 Field Placement: Severe Disabilities I (2-5)** Pre- or corequisites: EDSP400 and EDSP404; or permission of department. Practicum experience in settings serving severely disabled individuals. Enrollment limited to those admitted to severely handicapped specialty area. Field placement for two to five half-days per week.

**EDSP 403 Instructions of Students with Physical Disabilities (3)** For EDSP or 0808P majors only. Also offered as EDSP603. Credit will be granted for only one of the following: EDSP403 or EDSP603. Assessment, curriculum, and instruction for students with physical disabilities. Focus on etiology, environmental and learning adaptations, and assistive technology.

**EDSP 404 Education of Students with Autism (3)** Pre- or corequisites: {EDSP400 and EDSP402} or permission of department. Also offered as EDSP604. Credit will be granted for only one of the following: EDSP404 or EDSP604. Characteristics, needs, assessment, and educational methods for students diagnosed as autistic.

**EDSP 405 Field Placement: Severe Disabilities II (2-5)** Prerequisite: EDSP402 or permission of department. Pre- or corequisites: EDSP403, and EDSP410; or permission of department. Practicum experience in settings serving severely disabled individuals. Field placement for two to five half-days per week.

**EDSP 406 Field Placement I (1-3)** Restricted to students with the following major codes: EDSP, 0808L, and 0808P. Credit will be granted for only one of the following: EDSP322 or EDSP406. Formerly EDSP 322. Practicum experience in special education.

**EDSP 407 Field Placement II: Special Education (1-3)** For EDSP or 0808P majors only. Credit will be granted for only one of the following: EDSP333 or EDSP407. Formerly EDSP 333. Practicum experience in special education. Field placement for two-three half days.

**EDSP 410 Community-Based Assessment and Curriculum in Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP614. Credit will be granted for only one of the following: EDSP410 or EDSP614. Functional assessment, curriculum development, and instructional methods related to community functioning skills for students with severe disabilities.

**EDSP 411 Field Placement: Severe Disabilities III (2-5)** Prerequisite: EDSP405. Pre- or corequisites: EDSP412, and (EDSP420 or EDSP460); or permission of department. Practicum experience in settings serving severely disabled individuals. Field placement for two to five half-days per week.

**EDSP 412 Vocational and Transitional Instruction for Students with Severe (3)** Disabilities Prerequisite: permission of department. Assessment and instructional strategies for developing the vocational and transitional skills of students with severe disabilities.

**EDSP 413 Behavior & Classroom Management in Special Education (3)** For EDSP, 0808L or 0808P majors only. Also offered as EDSP613. Credit will be granted for only one of the following: EDSP321, EDSP413, or EDSP613. Formerly EDSP 321. Use of applied behavior analysis for assessment of behavior and learning environments. Design of behavior and classroom management of students in special education.

**EDSP 415 Assessment in Special Education (3)** Recommended: STAT100 or SOCY201. For EDSP or 0808P majors only. Also offered as EDSP615. Credit will be granted for only one of the following: EDSP320, EDSP415 or EDSP615. Formerly EDSP 320. Knowledge and skills for understanding assessment process and interpretation of assessment data. Emphasis on psychometric aspects of assessment related to screening, eligibility, and program planning.

**EDSP 416 Reading and Writing Instruction in Special Education I (3)** For EDSP or 0808P majors only. Also offered as EDSP616. Credit will be granted for only one of the following: EDSP416, EDSP443 or EDSP616. Formerly EDSP 443. Assessment and instruction of reading and writing skills for students in special education.

**EDSP 420 Characteristics of Infants & Young Children: Early Childhood (3)** Special Education For EDSP or 0808P majors only. Also offered as EDSP626. Credit will be granted for only one of the following: EDSP420 or EDSP626. Focus on developmental, behavioral, and learning characteristics of infants and young children with and without disabilities.

**EDSP 421 Field Placement III: Early Childhood Special Education (2-4)** For EDSP or 0808P majors only. Practicum experience in early childhood special education. Field placement for three half days per week.

**EDSP 422 Curriculum and Instruction: Early Childhood Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP627. Credit will be granted for only one of the following: EDSP422 or EDSP627. Curriculum and instruction for young children with mild and moderate disabilities, preschool through primary grades.

**EDSP 423 Assessment in Early Childhood Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP624. Credit will be granted for only one of the following: EDSP423 or EDSP624. Assessment procedures for infants and young children with disabilities, birth through age eight.

**EDSP 424 Field Placement IV: Early Childhood Special Education (2-4)** For EDSP or 0808P majors only. Practicum experience in early childhood special education. Field placement for three half days per week.

**EDSP 430 Early Intervention: Early Childhood Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP631. Credit will be granted for only one of the following: EDSP430 or EDSP631. Intervention with infants and young children with disabilities. Focus on moderate and severe disabilities.

**EDSP 431 Field Placement V: Early Childhood Special Education (2-4)** For EDSP or 0808P majors only. Practicum experience in early childhood special education. Field placement for three half days per week.

**EDSP 434 Field Placement III: Middle/Secondary Special Education (2-4)** For EDSP or 0808P majors only. Practicum experience in middle and secondary special education. Field placement for three half days per week.

**EDSP 435 Field Placement IV: Middle/Secondary Special Education (2-4)** For EDSP or 0808P majors only. Practicum experience in middle and secondary education. Field placement for three half days per week.

**EDSP 436 Field Placement V: Middle/secondary Special Education (2-4)** For EDSP or 0808P majors only. Practicum experience in middle and secondary special education. Field placement for three half days per week.

**EDSP 450 Inclusive Practices in the Schools (3)** Educational practices regarding inclusive education in the schools for students with and without disabilities.

**EDSP 451 Curriculum and Instruction: Elementary Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP652. Credit will be granted for only one of the following: EDSP451 or EDSP652. Methods for instruction of students with disabilities in the general education curriculum. Collaboration with other professionals is included.

**EDSP 452 Field Placement III: Elementary Special Education (2-4)** For EDSP or 0808P majors only. Practicum experience in elementary special education. Field placement for three half days per week.

**EDSP 453 Methods and Models of Instruction: Elementary Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP653. Credit will be granted for only one of the following: EDSP453 or EDSP653. Focus on models and methods of instruction responsive to the cognitive, linguistic, and cultural characteristics of elementary students in special education.

**EDSP 454 Field Placement IV: Elementary Special Education (2-4)** For EDSP or 0808P majors only. Practicum experience in elementary special education. Field placement for three half days per week.

**EDSP 455 Assessment in Elementary Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP654. Credit will be granted for only one of the following: EDSP455 or EDSP654. Focus on selection, administration, and interpretation of assessment tools and results for designing instruction and evaluating progress of elementary students in special education.

**EDSP 456 Field Placement V: Elementary Special Education (2-4)** For EDSP or 0808P majors only. Practicum experience in elementary special education. Field placement for three half days per week.

**EDSP 462 Vocational Assessment and Instruction in Special Education (3)** Prerequisite: EDSP460 or permission of department. Current vocational assessment strategies, interpretation of assessment results, and planning, delivery and evaluation of instruction in vocational education for secondary students with disabilities.

**EDSP 464 Secondary and Transition Methods in Special Education (3)** Prerequisite: EDSP462 or permission of department. Current secondary vocational/special education issues and transition methods including work-study programming, job development, and job coaching.

**EDSP 466 Issues and Models of Instruction: Middle/Secondary Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP664. Credit will be granted for only one of the following: EDSP466 or EDSP664. Issues, legislation, and service models in middle/secondary special education. Emphasis on career and vocational education, self-determination, and transition.

**EDSP 470 Introduction to Special Education (3)** Designed to give an understanding of the needs of all types of exceptional children.

**EDSP 474 Assessment in Middle/Secondary Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP674. Credit will be granted for only one of the following: EDSP474 or EDSP674. Cognitive, vocational, and social assessment for students with disabilities. Emphasis on interpretation of assessment results and case management practices.

**EDSP 476 Communicating with Sign Language (3)** Prerequisite: EDSP376 or permission of department. Intermediate level receptive/expressive skills in American Sign Language. Aspects of the culture, history, and research perspectives of the deaf community.

**EDSP 477 Curriculum, Assessment, and Instruction: Middle/Secondary Special (3)** Education For EDSP or 0808P majors only. Also offered as EDSP677. Credit will be granted for only one of the following: EDSP477 or EDSP677. Methods and assessment practices for effective instruction in middle and secondary content areas for students in special education.

**EDSP 480 Microcomputers in Special Education (3)** Credit will be granted for only one of the following: EDCI385, EDCI487, EDCI406, EDIT477, or EDSP480. Microcomputers for the education of individuals with disabilities.

**EDSP 484 Reading and Writing Instruction in Special Education II (3)** Prerequisite: EDSP416. For EDSP or 0808P majors only. Also offered as EDSP684. Credit will be granted for only one of the following: EDSP484 or EDSP684. Focus on the development of reading and writing programs for students in special education. Builds on foundations established in EDSP416.

**EDSP 485 Assessment and Instruction in Mathematics in Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP683. Credit will be granted for only one of the following: EDSP485 or EDSP683. Instructional methods and assessment in mathematics in special education .

**EDSP 486 Promoting Prosocial Behavior in Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP686. Credit will be granted for only one of the following: EDSP486 or EDSP686. Focus on social development among students with and without disabilities, the relationship between pedagogy and student behavior, and classroom, school, and community approaches for developing prosocial behavior.

**EDSP 487 Family Partnerships in Special Education (3)** For EDSP or 0808P majors only. Also offered as EDSP687. Credit will be granted for only one of the following: EDSP330, EDSP487, or EDSP687. Formerly EDSP 330. Strategies for communicating and working with families of students with disabilities.

**EDSP 488 Selected Topics in Teacher Education (1-3)** Prerequisite: major in education or permission of department. Repeatable to 6 credits if content differs.

**EDSP 489 Field Experiences in Special Education (1-4)** Prerequisite: permission of department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

**EDSP 490 Capstone Seminar in Special Education (3)** For EDSP or 0808P majors only. Study of current issues and research concerning the education of students in special education.

**EDSP 491 Characteristics of Learning Disabled Students (3)** Prerequisite: EDSP470 or permission of department. Diagnosis, etiology, physical, social, and emotional characteristics of learning disabled students.

**EDSP 492 Education of Learning Disabled Students (3)** Prerequisite: EDSP491 or permission of department. Methods of teaching learning disabled children.

**EDSP 494 Internship: Early Childhood Special Education (6-12)** For EDSP or 0808P majors only. Student teaching, full-time for twelve weeks, with infants or preschool children with disabilities.

**EDSP 495 Internship: Elementary Special Education (6-12)** For EDSP or 0808P majors only. Student teaching, full-time for twelve weeks, with elementary age children with disabilities.

**EDSP 496 Internship: Middle/Secondary Special Education (6-12)** For EDSP or 0808P majors only. Student teaching, full-time for twelve weeks, with middle or high school age students with disabilities.

**EDSP 498 Special Problems in Special Education (1-6)** Prerequisite: permission of department. Available only to education majors who have definite plans for individual study of approved problems. Credit according to extent of work.

**EDSP 499 Workshops, Clinics, and Institutes in Special Education (1-6)** Repeatable to 6 credits if content differs. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the special education department (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing. Laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

## EDUC – Education

**EDUC 275 Students, Learning and Technology (3)** One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Credit will be granted for only one of the following: EDUC275 or EDUC289A. Formerly EDUC 289A. Explore skills essential to college success: technology fluency and applications, team building, collaboration tools, problem based critical thinking, through MicroWorlds and RoboLab. Investigate and visit professions that interconnect the fields of education and technology.

**EDUC 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**EDUC 388 Special Topics in Education (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

**EDUC 475 Mindtools for Investigation and Education (3)** One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Prerequisite: permission of department. Junior standing. Also offered as EDUC698A. Explore educational games, simulations and computer modeling platforms common to many domains from a variety of fields. Focus on design and research issues pertinent to learning through simulations and games.

**EDUC 476 Assessment and Design Strategies for Improving Student Learning: Utilizing Data with Technology Tool (3)** One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Prerequisite: permission of department. Credit will be granted for only one of the following: EDUC476 or EDUC698V. Formerly EDUC 698V. Explore systemic improvement strategies to curriculum planning, assessment, and instruction through utilizing data and data analysis via technology tools. It is designed to assist educators in identifying and using data that are most effective in assisting improvement of student achievement and system efficacy.

**EDUC 477 Assistive Technology for the Classroom Setting (3)** One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Prerequisite: permission of department. Junior standing. Credit will be granted for only one of the following: EDUC477 or EDUC4980. Formerly EDUC 4980. Designed to be an introductory survey course for educators in the application of assistive technology in the general classroom setting. Students will be introduced to various assistive technologies and strategies.

**EDUC 478 Using Information Technology in Schools (1-3)** One hour of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Prerequisite: permission of department. Junior standing. Repeatable to 6 credits if content differs. Not open to students who have completed EDUC498K. Formerly EDUC 498K. Strategies, resources, tools and organizational concepts for using technology to facilitate classroom learning and school administrative functions.

**EDUC 498 Selected Topics in Education (1-3)** Prerequisite: permission of college. Repeatable to 9 credits if content differs. Current topics and issues in education.

**EDUC 499 Honors Thesis (1-6)** Prerequisites: admission to College Honors Program and permission of college. Individual thesis work under supervision of faculty advisors; includes periodic seminar meetings with other honors students engaged in thesis work.

## ENAE – Engineering, Aerospace

**ENAE 100 The Aerospace Engineering Profession (1)** Recommended: ENES100 and MATH140. Overview of salient aspects of professional practice of Aerospace Engineering. Introduction to the range of technical expertise needed to succeed in the profession and the objectives of the various parts of the Aerospace Engineering program at UMCP in supporting students' efforts in gaining the required knowledge and skills. Familiarization with departmental faculty and their areas of research, creation of links with other students, professional society student chapters, and available resources. Discussion of ethical issues, business requirements, and their interactions with technical developments.

**ENAE 200 Aerospace Engineering Profession II (1)** Permission of department. Recommended: ENAE100. For ENAE majors only. Overview of the engineering profession as it pertains to the role of the engineer in society, professional practice and ethical standards, career development, opportunities and need for lifelong learning, importance of safety and standards, effective written, visual, and oral communications, and the impact of the engineering profession on global issues.

**ENAE 202 Aerospace Computing (3)** Two hours of lecture and two hours of laboratory per week. Also offered as ENCE202. Credit will be granted for only one of the following: ENAE202 or ENCE202. Introduction to computational tools for the solution of engineering problems. C++ & MATLAB programming including branching and loops, functions, file handling, arrays, and data structures. Students will be introduced to object-oriented programming, basic computing, algorithms, and principles of software engineering.

**ENAE 283 Introduction to Aerospace Systems (3)** Prerequisites: PHYS161, ENES102 and MATH141. Corequisites: PHYS260 and 261, formerly PHYS262. Formerly: ENAE281 and ENAE282. For ENAE majors only. Credit will be granted for only one of the following: ENAE281 and ENAE282 or ENAE283. Introduction to airplanes and space vehicles as aerospace systems. Fundamentals that describe these systems. Elements of aerodynamics, airfoils and wings. Airplane performance, stability and control. Aircraft and rocket propulsion. Fundamentals of orbital motion. Aspects of vehicle conceptual design.

**ENAE 301 Dynamics of Aerospace Systems (3)** Prerequisites: ENAE283, MATH240, MATH246, and (PHYS270 and PHYS271 (Formerly: 263)). ENAE majors only or permission of department. Junior standing. Kinematics and dynamics of three dimensional motion of point masses and rigid bodies with introduction to more general systems. Primary emphasis on Newtonian methods. Practice in numerical solutions and computer animation of equations of motion using MATLAB.

**ENAE 311 Aerodynamics I (3)** Prerequisites: ENAE283 and MATH246. ENAE majors only or permission of department. Formerly ENAE 471. Fundamentals of aerodynamics. Elements of compressible flow. Normal and oblique shock waves. Flows through nozzles, diffusers and wind tunnels. Elements of the method of characteristics and finite difference solutions for compressible flows. Aspects of hypersonic flow.

**ENAE 324 Aerospace Structures (4)** Prerequisite: ENES220. For ENAE majors only. Credit will be granted for only one of the following: ENAE322 or ENAE324. Formerly ENAE 322. Analysis of torsion, beam bending, plate bending, buckling and their application to aerospace.

**ENAE 362 Aerospace Instrumentation and Experimentation (3)** Two hours of lecture and one hour of laboratory per week. Prerequisites: Grades of C or better in PHYS270 and PHYS271 (formerly PHYS263), ENAE283, and MATH246. Corequisites: ENAE380. Junior standing. For ENAE majors only. Basic instrumentation electronics including DC electronics, AC electronics, semiconductors, electro-optics and digital electronics. Sensing devices used to carry out experiments in Aerospace Engineering includes metrology, machine tool measurements, bridge circuits, optical devices, and introduction to computer based data acquisition. Topics chosen to support measurements in aerodynamics, flight structures and flight control.

**ENAE 380 Flight Software Systems (3)** Three hours of lecture and two hours of laboratory per week. Prerequisite: ENAE202 and ENAE283. Junior standing. For ENAE majors only. Avionics using advanced sensor and computing technologies are at the heart of every modern Aerospace vehicle. Advanced software systems to improve cockpit safety and enable unmanned and deep-space missions. Object-oriented programming and software engineering concepts required to design and build complex flight software systems. Software validation, verification and real-time performance analysis to assess flight software system reliability and robustness. Human-machine interface design for piloted systems. Automatic onboard data acquisition and decision-making for unmanned air and space vehicles.

## ENAE 398 Honors Research Project (1-3)

**ENAE 403 Aircraft Flight Dynamics (3)** Prerequisites: ENAE432 and ENAE414. ENAE majors only or permission of department. Study of motion of aircraft, equations of motion, aerodynamic force representation, longitudinal and lateral motions, response to controls and to atmospheric disturbances, handling qualities criteria and other figures of merit.

**ENAE 404 Space Flight Dynamics (3)** Prerequisite: ENAE301. ENAE majors only or permission of department. Three-dimensional motion under central fields. Solutions to orbital motion, orbital elements, time elements. Kepler's laws. Orbital maneuvering, rendezvous and station-keeping. Rigid-body attitude dynamics, spacecraft attitude dynamics.

**ENAE 414 Aerodynamics II (3)** Prerequisite: ENAE311. ENAE majors only or permission of department. Junior standing. Formerly ENAE 371. Aerodynamics of inviscid incompressible flows. Aerodynamic forces and moments. Fluid statics/buoyancy force. Vorticity, circulation, the stream function and the velocity potential. Bernoulli's and Laplace's equations. Flows in low speed wind tunnels and airspeed measurement. Potential flows involving sources and sinks, doublets, and vortices. Development of the theory of airfoils and wings.

**ENAE 415 Helicopter Theory (3)** Prerequisite: ENAE414. Elementary exposition on the theory and practice of aerodynamics applied to helicopters and other rotary wing aircraft.

**ENAE 416 Viscous Flow and Aerodynamic Heating (3)** Prerequisite: ENAE311. Recommended: ENAE414. ENAE majors only or permission of department. Derivation of the conservation equations and applications to viscous flows while the energy equation is simplified for conduction in solids. Exact and approximate solutions for steady and unsteady conduction. Exact solutions for channel flow, couette flow, pipe flow and stagnation point flows. Boundary layer simplifications and exact solutions of the boundary layer equations for flat plates and self similar flows. Approximate and integral solutions of the boundary layer equations. Emphasis on aerodynamic heating and thermal control.

**ENAE 423 Vibration and Aeroelasticity (3)** Prerequisite: ENAE324. ENAE majors only or permission of department. Dynamic response of single and multiple degrees of freedom systems, finite element modeling, wing divergence, aileron reversal, wing and panel flutter.

**ENAE 424 Design and Manufacture of Composite Prototypes (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: ENES220. Corequisite: ENAE324. Manufacturing practices involving composites. Developing a manufacturing process for a composite component integrating the many aspects including cost, schedule, performance. Student teams provide oral and written reports of the design and manufacture of a composite prototype.

**ENAE 425 Mechanics of Composite Structures (3)** Prerequisite: MATH246. Corequisite: ENAE324. Introduction to structures composed of composite materials and their applications in aerospace. In particular, filamentary composite materials are studied. Material types and fabrication techniques, material properties, micromechanics, anisotropic elasticity, introduction to failure concepts.

**ENAE 426 Computer-Aided Structural Analysis and Design (3)** Prerequisite: ENAE423. ENAE majors only or permission of department. Provides an understanding of the application of the finite element method (FEM) through the use of a general purpose FEM computer software to perform Static and Normal Modes Analysis.

**ENAE 432 Control of Aerospace Systems (3)** Prerequisite: grade of C or better in ENAE283 and ENAE301. Junior standing. Formerly ENAE 332. An introduction to the feedback control of dynamic systems. Laplace transforms and transfer function techniques; frequency response and Bode diagrams. Stability analysis via root locus and Nyquist techniques. Performance specifications in time and frequency domains, and design of compensation strategies to meet performance goals.

**ENAE 441 Space Navigation and Guidance (3)** Prerequisites: ENAE432 and ENAE404. ENAE majors only or permission of department. Principles of navigation. Celestial, radio, and inertial navigation schemes. Navigational and guidance requirements for orbital, planetary, and atmospheric entry missions. Fundamentals of communications and information theory. Link budgets, antennas and telemetry systems.

**ENAE 455 Aircraft Propulsion and Power (3)** Prerequisite: ENAE311, ENAE414 and ENME232. ENAE majors only or permission of department. Thermodynamic cycle analysis, aerothermochemistry of fuels and propellants, operating principles of piston, turbojet, fanjet, and other variations of airbreathing aircraft power units.



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**ENAE 457 Space Propulsion and Power (3)** Prerequisites: ENAE311, ENME232 and (PHYS270 and 271 {Formerly: PHYS263}). ENAE majors only or permission of department. Senior standing. Thermodynamic cycle analysis, aerothermochemistry of fuels and propellants, operating principles of rocket, ion, and other exoatmospheric power units.

**ENAE 464 Aerospace Engineering Laboratory (3)** Two hours of lecture and three hours of laboratory per week. Prerequisites: ENAE311; ENAE324; ENAE432; and ENAE362. ENAE majors only or permission of department. Application of fundamental measuring techniques to measurements in aerospace engineering. Includes experiments in aerodynamics, structures, propulsion, flight dynamics and astrodynamics. Correlation of theory with experimental results.

**ENAE 471 Aircraft Flight Testing (3)** Prerequisite: ENAE414;. Corequisite: ENAE403. For ENAE majors only. Provides basic instruction to aircraft flight testing and demonstrates need for systematic, well-proven technique to allow for accurate airplane performance. Concepts of aerodynamics, airplane performance, and stability and control. Emphasis on single-engine general aviation type aircraft.

**ENAE 481 Principles of Aircraft Design (3)** Prerequisites: ENAE324, ENAE362 and ENAE432. Corequisite: ENAE414. ENAE majors only or permission of department. Aircraft design principles blending both synthesis and analysis. The iterative nature of the design process. Applied aerodynamics. Elements of aircraft performance calculation and optimization. Design of aircraft including payload, crew and avionics provisions, propulsion selection and sizing, aerodynamic configuration optimization, mass properties, stability and control characteristics, and vehicle subsystems. Individual student projects in aircraft design.

**ENAE 482 Aeronautical Systems Design (3)** Two hours of lecture and three hours of laboratory per week. Prerequisites: ENAE403; ENAE423; ENAE455; and ENAE481. Senior standing. For ENAE majors only. Senior capstone design course in the aeronautics track. Introduction of computerized methods for sizing and performance analysis. More comprehensive methods to predict weight, aerodynamics and propulsion system characteristics. Consideration in design disciplines such as vulnerability, maintainability, produceability, etc. Groups of students will complete, brief and report on a major design study to specific requirements.

**ENAE 483 Principles of Space Systems Design (3)** Prerequisites: ENAE324; ENAE432; ENAE362; and ENAE404. ENAE majors only or permission of department. Principles of space systems analysis and vehicle design. Launch vehicle performance analysis and optimization. Design of vehicle systems including avionics, power, propulsion, life support, human factors, structures, actuator and mechanisms, and thermal control. Design processes and design synthesis. Individual student projects in vehicle design.

**ENAE 484 Space Systems Design (3)** Three hours of lecture and six hours of discussion/recitation per week. Prerequisites: ENAE423; ENAE441; ENAE457; and ENAE483. For ENAE majors only. Senior capstone design course in the space track. Group preliminary design of a space system, including system and subsystem design, configuration control, costing, risk analysis, and programmatic development. Course also emphasizes written and oral engineering communications.

**ENAE 488 Topics in Aerospace Engineering (1-4)** Technical elective taken with the permission of the student's advisor and instructor. Lecture and conference courses designed to extend the student's understanding of aerospace engineering. Current topics are emphasized.

**ENAE 499 Elective Research (1-3)** Prerequisites: senior standing in ENAE major and permission of department, instructor, and student's advisor. Repeatable to 6 credits. Original research projects terminating in a written report.

### ENBE – Biological Resources Engineering

**ENBE 100 Basic Biological Resources Engineering Technology (3)** For non-engineering majors. Formerly ENAG 100. An introduction to the applications of engineering concepts to biology, agriculture, and environment. Topics include quantification measurements, mechanical, thermal, fluid, and electrical principles.

**ENBE 110 Introduction to Biological Resources Engineering (1)** One hour of lecture and one hour of laboratory per week. Biological engineering applications, including aquaculture, bioinstrumentation, biomedicine, biotechnology, environment, food, and plant growth. Simple laboratory experiments will illustrate important techniques used by biological engineers.

**ENBE 120 Predictive Biology (2)** Three hours of lecture per week. Freshman standing. Survey of biological and engineering sciences applied to biology and medicine.

**ENBE 200 Fundamentals of Agricultural Mechanics (3)** Two hours of lecture and four hours of laboratory per week. Formerly ENAG 200. Study of hand tools and power shop equipment as they relate to mechanized agriculture, in tool fitting, plumbing, wood and metal working, welding, brazing, soldering, hot and cold sheet metal, electricity, construction and building materials, sketching, drawing and using plans for construction. Emphasis is upon the development of orderly and safe shop procedures.

**ENBE 234 Principles of Erosion and Water Control (1)** Introduction to principles of estimating runoff and erosion. Engineering principles necessary to control erosion and runoff from agricultural areas. For non-engineering students.

**ENBE 236 Design of Drainage Systems (1)** Effect of drainage on crop production and quality. Design of agricultural drainage systems. For non-engineering students.

**ENBE 237 Design of Irrigation Systems (1)** Principles and practices of agricultural irrigation, including types of irrigation systems, soil water concepts, computing evapotranspiration, irrigation scheduling and design of a sprinkler irrigation system. For non-engineering students.

**ENBE 241 Computer Use in Bioresources Engineering (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. Application of computer technology to biological and natural resource systems considering engineering aspects. Designed to help students in the use of computer technology for problem solving. The course will cover 4-5 software packages important for later use by the student.

**ENBE 381 Creative Design with CAD (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES102, ENES220, and PHYS161; or equivalent. For ENBE majors only. Credit will be granted for only one of the following: ENBE381 or ENBE481. Formerly ENBE 481. Engineering design using computer aided design (CAD) techniques applicable to Biological Resources Engineering applications.

**ENBE 388 Honors Thesis Research (3-6)** Prerequisite: admission to AGNR or ENGR honors program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an ENBE faculty member in partial fulfillment of the requirements of the College of AGNR or ENGR Honors Program. The thesis will be defended to a faculty committee.

**ENBE 414 Mechanics of Food Processing (4)** Prerequisite: PHYS121. Formerly ENAG 414. Three lectures and one laboratory per week. Applications in the processing and preservation of foods, of power transmission, hydraulics, electricity, thermodynamics, refrigeration, instruments and controls, materials handling and time and motion analysis.

**ENBE 415 Bioengineering of Exercise Response (3)** Prerequisite: MATH246 or permission of department. Exercise physiology in quantitative terms. Modeling and prediction of cardiovascular, respiratory, thermoregulatory, biomechanical, and metabolic aspects of human exercise responses.

**ENBE 422 Water Resources Engineering (3)** Prerequisite: ENME342 or ENCE330; or permission of department. Formerly ENAG 422. Applications of engineering and soil sciences in erosion control, drainage, irrigation and watershed management. Principles of agricultural hydrology and design of water control and conveyance systems.

**ENBE 435 Aquacultural Engineering (3)** Prerequisite: algebra, ability to read and interpolate graphical material and one semester each of college physics and college chemistry; and permission of department. Formerly ENAG 435. The course will explore the natural aquatic environment and how aquatic organisms are effected by this environment. The course will then explore ways to modify aquatic environments, especially in recirculating systems, and will explore ways to increase production of fish with less water usage. Components of recirculating systems including water filtration, pumps, aerators, level and flow meters, and other system components will be described and their operating principals explored.

**ENBE 451 Water Quality: Field and Lab Analysis Methods (3)** Two hours of lecture and three hours of laboratory per week. Prerequisites: CHEM103 and (CHEM104 or CHEM113). Also offered as NRMT451. Credit will be granted for only one of the following: ENBE451 or NRMT451. Hands-on experience with techniques for assessing physical, chemical, and biological characteristics of surface waters, including streams, lakes, and wetlands. Emphasis is placed on understanding effects of water quality on ecosystem structure and function.

**ENBE 453 Introduction to Biological Materials (3)** Prerequisite: ENES220 or equivalent. Basic engineering properties of biological materials, including animal tissues and agricultural products, and of traditional engineering materials such as metals, ceramics, alloys, and polymers. Course includes limited laboratory experiences.

**ENBE 454 Biological Process Engineering (4)** Prerequisites: MATH246; and ENME331 or ENCE305 or equivalent; and one semester of life sciences, or permission of department. Also offered as ENBE603. Credit will be granted for only one of the following: ENBE454 or ENBE603. Formerly ENAG 454. Fluid flow, heat transfer, and mass transfer with applications in medicine, environment, biotechnology, food, agriculture, and other biosystems. Design of solutions to current problems in biological engineering is emphasized.

**ENBE 455 Basic Electronic Design (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: PHYS142 or equivalent, MATH246, and ENBE241. Familiarization with basic electronic circuits and the ability to produce simple electronic designs.

**ENBE 456 Biomedical Instrumentation (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENBE455, one course in human physiology, or permission of department. Study of biomedical instrumentation and biomedical equipment technology. How biomedical equipment is used to measure information from the human body. Hands-on experience with representative biomedical equipment.

**ENBE 462 Nonpoint Source Pollution Assessment Techniques (3)** Prerequisite: one course in hydrology or permission of department. Various techniques to identify and measure nonpoint source pollution. Primary focus is on agriculture and water.

**ENBE 471 Biological Systems Control (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENBE455, one course in biological sciences or permission of department. Principles of control systems designed by biological engineers and analysis of control mechanisms found in biological organisms. Apparent control strategies used by biological systems will be covered.

**ENBE 481 Creative Design with CAD/CAM (3)** Two hours of lecture and two hours of laboratory per week. Formerly ENAG 481. Computer aided design (CAD) techniques applicable to a wide range of engineering applications.

**ENBE 482 Dynamics of Biological Systems (1)** Prerequisite: ENBE454 or equivalent. Force-acceleration, work energy, and impulse-momentum relationships important for biological systems and whole-body organisms.

**ENBE 484 Engineering in Biology (3)** Two hours of lecture and one hour of laboratory per week. Prerequisite: MATH221 or MATH141; and PHYS141 or PHYS161; and CHEM103 or higher; or permission of department. Recommended: ENBE454. Engineering with biological systems, with emphasis on utilization, design, and modeling. Should be taken by all who are interested in learning about products or processes involving living things.

**ENBE 485 Capstone Design I (1)** One hour of lecture per week. Prerequisite: ENBE454, ENBE455, and permission of department. Senior standing. For ENBE majors only. To complete the curriculum of an undergraduate engineer, design procedures and professional concerns will be presented. Students will begin planning and designing their capstone projects. CORE capstone credit for ENBE485 and ENBE486 will not be awarded until satisfactory completion of ENBE486.

**ENBE 486 Capstone Design II (2)** Two hours of lecture per week. Prerequisite: ENBE485 taken in the immediately preceding semester. Senior standing. For ENBE majors only. To complete the curriculum of an undergraduate engineer, design procedures and professional concerns will be presented. A complete, comprehensive, and professional design project will be realized by the student. CORE Capstone credit for ENBE485 and ENBE486 will not be awarded until satisfactory completion of ENBE486.

**ENBE 488 Special Topics in Biological Engineering (1-4)** Prerequisite: permission of department. Lecture and conference courses designed to extend the student's understanding of biological resources engineering. Current topics are emphasized.

**ENBE 489 Special Problems in Biological Engineering (1-3)** Prerequisite: permission of department. Student will select an engineering problem and prepare a technical report. The problem may include design, experimentation, and/or data analysis.

**ENBE 499 Special Problems in Agricultural Engineering Technology (1-3)** Prerequisite: permission of department. Formerly ENAG 499. Not acceptable for majors in agricultural engineering. Problems assigned in proportion to credit.

### ENCE – Engineering, Civil

**ENCE 100 Introduction to Civil and Environmental Engineering (1)** An introduction to, and an overview of, Civil and Environment Engineering. It will introduce students to the undergraduate curriculum and also exposes them to students and graduates who are at various points in their CEE careers. The course blends panel presentations by seniors and graduate students, faculty and practitioners with a project and book review to be performed by the students.

**ENCE 200 Engineering Information Processing I (3)**  
Prerequisites: MATH141, ENES100, ENES102 and permission of department. Credit will be granted for only one of the following: ENCE200 or ENCE202. Formerly ENCE 202. Spreadsheet, computational and symbolic processing packages are introduced in the context of solving engineering problems, including systems of linear equations. Computer architecture, networks, Boolean algebra, databases and introductory programming skills.

**ENCE 201 Engineering Information Processing II (3)**  
Prerequisite: ENCE200 and permission of department. Credit will be granted for only one of the following: ENCE201 or ENCE203. Matrix algebra and numerical computing. Includes computing accuracy, solutions of systems of linear equations, root-finding, function approximation, and numerical integration. Additional computing material including data types and structures, object-based programming, event-based programming, and client-server computing. Numerical and computing techniques are taught in the context of solving engineering problems.

**ENCE 215 Applied Engineering Sciences (3)** Prerequisite: CHEM135 and permission of department. Examination of fundamental and applied aspects of chemistry, biology, and geochemistry. Fundamental principles will be coupled with analytical and computational skills essential for addressing crucial processes on human impact on the environment and urban infrastructure. Applications to the development of new materials and technologies will be covered in case studies. Students should come out with an appreciation of how understanding the fundamental concepts could facilitate the development of technologies to mitigate human impact on the environment.

**ENCE 300 Fundamentals of Engineering Materials (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES220 and permission of department. Behavior, physical, mechanical and chemical properties, design and performance of civil engineering materials, including aggregates, cement, concrete, asphalt binders and mixtures, plastics and geosynthetics, timber, metals and alloys. Modified and advanced highway materials (polymer and rubber modified mixtures, high performance concrete, composites, smart materials). Laboratory testing with hands-on experience on aggregates, Portland cement concrete, asphalt mixtures, timber and metals as per SUPERAVE, ACI design methods, and ASTM standards and specifications.

**ENCE 301 Geo-Metrics and GIS in Civil Engineering (3)**  
Prerequisites: ENCE200, ENCE201 and permission of department. The purpose is to have students develop skills in using GIS technology to solve a range of problems in Civil and Environmental Engineering. It begins with a rigorous unit on the basics of database organization and use. Then it presents GIS concepts emphasizing the linkage between a standard relational database and the spatially-referenced database underlying the GIS. Both raster and vector data models are presented and used in a variety of natural applications to Civil and Environmental Engineering. Students are also exposed to scripting which aids in the development of more elaborate analyses and reinforces object-oriented programming concepts learned in ENCE 200 and ENCE 201.

**ENCE 302 Probability and Statistics for Civil and Environmental Engineers (3)** Prerequisites: ENCE201, MATH246, and permission of department. Statistics is the science of data. Civil Engineers must often make decisions based on incomplete, variable or uncertain information. In addition, modern methods of design and analysis need to account for variability in natural, engineered and human systems. After successful completion of this class, a student should have facility and familiarity with established basic techniques for managing data, modeling variability and uncertainty, communicating about data and decisions, and supporting or defending a decision or judgement based on uncertain or incomplete data.

**ENCE 305 Fundamentals of Engineering Fluids (3)**  
Prerequisites: ENES220, (PHYS260 and PHYS261 {Formerly: PHYS262}) and permission of department. Credit will be granted for only one of the following: ENCE305 or ENCE330. Formerly ENCE 330. The theoretical bases for fluid statics and dynamics, including the conversation of mass, energy and momentum. Modeling of hydraulic systems are introduced. Emphasis on pipe flow and open-channel hydraulics, with real-world applications.

**ENCE 310 Introduction to Environmental Engineering (3)**  
Prerequisites: ENCE215, PHYS260 (Formerly: PHYS262) and permission of department. Introduction to the physical, chemical and biological systems relating to the quality of water, land and air environments. Fundamental principles will be emphasized, current environmental pollution problems will be examined and methods of pollution abatement discussed.

**ENCE 320 Engineering Project Management (3)** Five hours of lecture per week. Prerequisite: permission of department. The principles and techniques of managing engineering and construction projects from the conceptual phase, through design and construction, to completion and close out are presented. Students will develop the analytical skills and awareness necessary on the management side of engineering projects. Topics include project initiation, estimating, budgeting, developing work plans, scheduling, tracking work, design coordination, construction coordination, quality management, managing teams and close out.

**ENCE 340 Fundamentals of Geotechnical Engineering (3)**  
Prerequisites: ENCE210, ENES220 and permission of department. Introductory study of soils in civil engineering. Soil origin, phase relationships and classification schemes. Soil hydraulics: capillary, effective stress, permeability and seepage considerations. Basic stress distribution theories and soil consolidation-settlement analysis. Integration of shear strength evaluation with slope stability analysis. If time permits, topics such as applications in geoenvironmental engineering will be covered.

**ENCE 353 Introduction to Structural Analysis (3)**  
Prerequisites: ENES220, MATH246 and permission of department. The basic tools of structural analysis and design. Design loads. Equilibrium of external and internal forces. Shear and moment diagrams in beams and frames. Truss analysis. Influence line diagrams. The slope-deflection method and method of consistent deformation. Matrix stiffness methods for beams, frames and trusses.

**ENCE 360 Analysis of Civil Engineering Systems (3)**  
Prerequisites: ENCE201, MATH140 and permission of department. Introduction to systems approach and systems analysis in civil and environmental engineering. Introduction to systems analysis tools that facilitate engineering management decision making including optimization and computer simulation. Introduction to linear and nonlinear mathematical optimization including linear and integer programming, elementary nonlinear programming and dynamic programming.

**ENCE 370 Introduction to Transportation Engineering and Planning (3)** Prerequisites: ENCE201, (PHYS260 and PHYS261 {Formerly: PHYS262}) and permission of department. Engineering problems of transportation by highways, airways, pipelines, waterways, and railways. Transportation modes and technologies, vehicle dynamics, basic facility design, traffic stream models, capacity analysis, transportation planning, evaluation and choice, and network analysis.

**ENCE 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**ENCE 398 Honors Research Project (1-3)**

**ENCE 402 Simulation and Design of Experiments for Engineers (3)** Prerequisites: ENCE302 and permission of department. Review of statistics and hypothesis testing, sample design and design of experiments, generation of discrete and continuous distributions and their applications. Introduction of simulation languages and simulation of discrete and continuous engineering systems. Output analysis, model validation and sensitivity and reliability analysis.

**ENCE 411 Environmental Engineering Science (3)** Two hours of lecture and four hours of laboratory per week. Prerequisites: ENCE310 and permission of department. The basic physical, chemical and biological processes that occur in engineered and natural environmental systems will be discussed. Included will be presentation of parameters used to describe the quality of water, air and land. Measurement techniques will be discussed. A weekly lab will provide hands-on experience with environmental quality measurements and treatment techniques.

**ENCE 412 Environmental Engineering Unit Operations (3)**  
Prerequisites: ENCE305, ENCE310 and permission of department. Examination of unit operations and processes encountered in environmental engineering field. Fundamental principles learned from previous classes will be applied into the design and operation of unit operations and processes, particularly in the area of water and wastewater treatment. Similar processes will be applied to air pollution control, solid waste disposal and hazardous waste treatment.

**ENCE 420 Construction Equipment and Methods (3)**  
Prerequisite: ENCE320 or equivalent; and permission of department. Senior standing. Evaluation and selection of equipment and methods for construction of projects, including earthmoving, paving, steel and concrete construction, formwork, trenching, cofferdams, rock excavation, tunneling, site preparation and organization. Design of formwork, trench supports, and cofferdams.

**ENCE 421 Engineering Contracts (3)** Prerequisites: ENCE320 or equivalent; and permission of department. What constitutes a contract will be presented; the different types and variations of basic contracts such as fixed price, cost reimbursable, time and materials, design-build, design-bid-build, CM at risk; the differences between a GMP, lump sum and cost plus type contracts; the differences between government contracts (key FAR clauses), and industry models such as AIA, AGC, DBIA's etc.; discussion on conflict management strategies, resolving disputes, claim notification, and purchase orders; the types of scopes of work; special conditions; terms and conditions; solicitation planning; procurement documents; source selection; negotiation; letters of intent; non-competitive forms of procurement; contract administration; and the essentials of employment law as it affects individuals, performance appraisals, diversity in the workplace, and interview protocols.

**ENCE 422 Project Cost Accounting and Economics (3)**  
Prerequisites: ENCE201, ENCE320 or equivalent; and permission of department. Effective project managers have complete command of their project costs. Reviews the fundamentals of accounting; examines project cost accounting principles, applications, and impact on profitability; examines the principles of activity based costing; covers the elements involved in cash management; introduces the framework for project performance measurement, net present value, depreciation, taxes, and earned value analysis.

**ENCE 423 Project Planning, Scheduling and Control (3)**  
Prerequisites: ENCE302, ENCE320 or equivalent; and permission of department. Students will learn the basics of project planning and scope development; developing implementation plans; creating work breakdown structures; scheduling fundamentals and the different methods of scheduling; when to schedule, why network schedules and the network diagram; scheduling calculations and the critical path; managing project risk; and the fundamentals of project control including basic control theory and how to control project cost, schedule and resources.

**ENCE 425 Decision Analysis for Engineering (3)** Prerequisites: ENCE302, MATH141 or equivalent; and permission of department. Probability basics, subjective probability, using data, introduction to decision analysis, elements of decision problems, structuring decisions, making choices, sensitivity analysis, creativity and decision-making, Monte Carlo simulation, value of information, risk-based decision making and multi-criteria ranking.

**ENCE 431 Hydrologic Engineering (3)** Prerequisites: ENCE305 and permission of department. An introduction to basic principles of hydrologic science including the hydrologic cycle, rainfall, surface runoff and streamflow. Special emphasis is placed on hydrologic engineering design of stormwater management and flood control facilities. Design projects are used to illustrate design practices.

**ENCE 432 Ground Water Hydrology (3)** Prerequisites: ENCE 305 and permission of department. Concepts related to the development of the ground water resources, hydrology, hydrodynamics of flow through porous media, hydraulics of wells and basin-wide ground water development. Fundamentals of ground water pollution are introduced.

**ENCE 441 Foundation Design (3)** Prerequisites: ENCE340 and permission of department. Critical review of classical lateral earth pressure theories, analysis of retaining walls and reinforced earth walls, subsurface explorations, bearing capacity and settlement of shallow foundations, design of deep foundations that includes both pile foundations and drilled shafts.

**ENCE 444 Laboratory Characterization of Geomaterials (3)** One hour of lecture and four hours of laboratory per week. Prerequisites: ENCE340 and permission of department. Review of major soil tests and their interpretation for engineering purposes. Engineering classification tests (Atterberg limits and grain size distribution), permeability, in-situ and lab density-moisture test, soil strength (CBR, unconfined compression, direct shear test and triaxial) and compressibility characteristics.

**ENCE 447 Pavement Engineering (3)** Prerequisites: ENCE340 and permission of department. Fundamental principles underlying the design, construction, maintenance and repair, and management of highway and airport pavement systems. Pavement performance (functional/structural; evaluation); pavement mechanics (multi-layered elastic theory; slab theory); pavement materials (properties and characterization); environmental effects; current rigid and flexible design methods (new/rehabilitation); construction (new construction; maintenance/repair; rehabilitation); economic evaluation; pavement management.

**ENCE 453 Computer-Aided Structural Analysis (3)** Two hours of lecture and one hour of laboratory per week. Prerequisite: ENCE353 and permission of department. Computer-aided analysis of structural systems. Unified matrix formulation of stiffness and flexibility methods. Slope deflection method. Evaluation of truss, frame, and grid systems. Non-prismatic and curved elements. Error analysis and determination of ill-conditions. Introduction to finite element methods; formulation of simple two-dimensional elements. In laboratory, use and development of CAD software.



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**ENCE 454 Design of Concrete Structures (3)** Prerequisites: ENCE353, ENCE355, and permission of department. Formerly ENCE 451. Combined bending and compression, development and anchorage of reinforcement, deflections, design of slabs including one-way and two-way, design of footings, retaining walls, introduction to prestressed concrete, design of multi-story buildings.

**ENCE 455 Design of Steel Structures (3)** Prerequisites: ENCE353, ENCE355, and permission of department. Behavior and design of members subjected to fatigue, and combined bending and compression; plate girders, composite beams, open-web joists and connections. Methods of allowable stress design, and load and resistance factor design. Elements of plastic analysis and design. Framing systems and loads for industrial buildings and bridges.

**ENCE 456 Intermediate Strength of Materials (3)** Prerequisites: ENCE353 and permission of department. Credit will be granted for only one of the following: ENCE410 or ENCE456. The small deflection engineering theory of long, straight beams with arbitrary but compact cross-sections. Beam bending and extension via the Bernoulli-Euler approximation. Beam torsion from the theory of elasticity and the membrane analogy. Beam shearing stresses.

**ENCE 466 Design of Civil Engineering Systems (3)** Must be taken in the semester in which the student graduates. Prerequisite: permission of department. Senior standing. A major civil engineering design experience that emphasizes development of student creativity, development and use of design methodologies, evaluation of alternate solutions, feasibility considerations, and detailed system descriptions. Realistic design constraints including economic factors, safety, aesthetics, and reliability will be imposed. Students will work in design project groups and be required to exercise oral and written communication skills.

**ENCE 470 Highway Engineering (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE302, ENCE370 and permission of department. Highway location and design, highway engineering economics, traffic engineering, traffic measurement devices and technologies. Includes discussion of technological advances in traffic flow and capacity, such as signal systems, corridor control, automatic driver information, incident detection and autonomous vehicle operation.

**ENCE 472 Transportation Engineering (3)** Prerequisite: ENCE302, ENCE370 and permission of department. Transportation engineering concepts including transportation systems analysis, airport systems, airline and airport operations, marine transportation and urban public transportation systems.

**ENCE 488 Senior Thesis (3)** Prerequisite: permission of department. Senior standing. Advanced study in civil engineering problems with special emphasis on mathematical modeling and experimental methods.

**ENCE 489 Special Problems in Civil Engineering (1-4)** Prerequisite: permission of department. Senior standing. A course arranged to meet the needs of exceptionally well prepared students for study in a particular field of civil engineering.

### ENCH – Engineering, Chemical

**ENCH 215 Chemical Engineering Analysis (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: CHEM133 or CHEM113. Pre- or corequisite: MATH141. Introduction to methods of chemical engineering calculations and analysis. Stoichiometric relations, material and energy balances, and behavior of gases, vapors, liquids and solids. Analytical and computer methods.

**ENCH 250 Computer Methods in Chemical Engineering (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENES100; and ENCH215. Corequisite: MATH246. Algorithm development and application of software to the analysis of chemical engineering problems. File management and editing, graphics and numerical methods. Use of spreadsheets, statistics/math software and process simulators for the design of chemical process equipment.

**ENCH 300 Chemical Process Thermodynamics (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: CHEM243; and ENCH215. Corequisite: MATH241 and ENCH250. Principles of thermodynamics and their application to engineering problems. First and second laws of thermodynamics, properties of gases, liquids and solids, phase equilibrium, flow and non-flow systems, energy conversion, production of work from heat, thermodynamic analysis of processes, equilibrium stage operations and the thermodynamics of chemically reacting systems.

**ENCH 333 Chemical Engineering Seminar (1)** Junior standing. Oral and written reports on recent developments in chemical engineering and the process industries.

**ENCH 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**ENCH 400 Chemical Engineering Thermodynamics (3)** Prerequisite: PHYS260 and 261 (Formerly: PHYS262). ENCH250 and ENCH300. Contemporary trends in chemical engineering thermodynamics that bridge the gap between fundamentals and applications. Thermodynamic analysis of non-ideal and structured systems; such as complex fluids, strongly fluctuating and nanoscale systems, dissipative systems, biosystems, and systems under extreme conditions.

**ENCH 422 Transport Processes I (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENCH215 and ENCH250. Pre- or corequisites: MATH241 and MATH246. Principles of fluid dynamics as applied to model development and process design. Mass, momentum and energy conservation. Statics and surface tension. Equation of Continuity and Navier-Stokes Equation with application to laminar flow. Dimensional analysis. Macroscopic balances, Bernoulli Equation and friction factors with application to turbulent flow.

**ENCH 424 Transport Processes II (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENCH300 and ENCH422. Principles of mass and heat transfer as applied to model development and process design. Species continuity equation with application to diffusion, and convection in laminar flow. Macroscopic balances and mass transfer coefficients with application to turbulent flow. Microscopic equation of energy with application to heat conduction, and convection in laminar flow. Macroscopic energy balance and heat transfer coefficients with application to turbulent flow. Heat exchanger design.

**ENCH 426 Transport Processes III (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENCH300. Separation by staged operations. Rate dependent separation processes. Design applications in distillation, gas absorption, liquid extraction, drying, adsorption and ion exchange.

**ENCH 437 Chemical Engineering Laboratory (3)** Six hours of laboratory per week. Prerequisites: ENCH424; ENCH426; ENCH440; and ENCH442. Application of chemical engineering process and unit operation principles in small-scale semi-commercial equipment. Data from experimental observations are used to evaluate performance and efficiency of operations. Emphasis on correct presentation of results in report form.

**ENCH 440 Chemical Engineering Kinetics (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENCH400; and ENCH422. Fundamentals of chemical reaction kinetics and their application to the design and operation of chemical reactors. Reaction rate theory, homogeneous reactions and catalysis electrochemical reactions. Catalytic reactor design.

**ENCH 442 Chemical Engineering Systems Analysis (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: ENCH300; and ENCH422. Corequisite: ENCH440. Dynamic response applied to process systems. Goals and modes of control, Laplace transformations, analysis and synthesis of simple control systems, closed loop response, dynamic testing.

**ENCH 444 Process Engineering Economics and Design I (3)** Prerequisites: ENCH424; ENCH426 and ENCH440. Principles of chemical engineering economics and process design. Emphasis on equipment types, equipment design principles, capital cost estimation, operating costs, and profitability.

**ENCH 446 Process Engineering Economics and Design II (3)** Prerequisite: ENCH444. Application of chemical engineering principles for the design of chemical processing equipment. Typical problems in the design of chemical plants.

**ENCH 450 Chemical Process Development (3)** Prerequisite: ENCH424. Chemical process industries from the standpoint of technology, raw materials, products and processing equipment. Operations of major chemical processes and industries combined with quantitative analysis of process requirements and yields.

**ENCH 453 Applied Mathematics in Chemical Engineering (3)** Prerequisites: MATH246; ENCH426 and ENCH440. Mathematical techniques applied to the analysis and solution of chemical engineering problems. Use of differentiation, integration, differential equations, partial differential equations and integral transforms. Application of infinite series, numerical and statistical methods.

**ENCH 454 Chemical Process Analysis and Optimization (3)** Prerequisites: MATH246; ENCH426 and ENCH440. Applications of mathematical models to the analysis and optimization of chemical processes. Models based on transport, chemical kinetics and other chemical engineering principles will be employed. Emphasis on evaluation of process alternatives.

**ENCH 455 Model Predictive Control (3)** One hour of lecture and six hours of laboratory per week. Prerequisite: ENCH422. Credit will be granted for only one of the following: ENCH455 or ENCH468Z. Formerly ENCH 468Z. Empirical model identification from process data. Step and impulse response models. Linearization of nonlinear first principles models. Single variable Model Predictive Control. Robustness with respect to modeling error. MPC based tuning of PID controllers. Feedforward control. Multi-input multi-output processes. Multi-loop decentralized control. Centralized multivariable Model Predictive Control via on-line optimization.

**ENCH 456 Plantwide Process Control (3)** Prerequisite: ENCH442. Credit will be granted for only one of the following: ENCH442 or ENCH468L. Formerly ENCH 468L. An introduction to the problem of designing plantwide control system architectures. Steady state gain calculation, singular value decomposition, relative gain array, Niederlinski index, cascade control, averaging level control loop tuning, dynamic simulation, model based control. The Tennessee Eastman challenge problem is used throughout the course to illustrate the methods discussed.

**ENCH 468 Research (1-3)** Prerequisite: permission of both department and instructor. Repeatable to 6 credits. Investigation of a research project under the direction of a faculty member. Comprehensive reports are required.

**ENCH 470 The Science and Technology of Colloidal Systems (3)** Prerequisites: ENCH400; ENCH424; ENCH426; and CHEM482. Credit will be granted for only one of the following: ENCH468C or ENCH470. Formerly ENCH 468C. Introduction to colloidal systems. Preparation, stability and coagulation kinetics of colloidal suspensions. Introduction to DLVO theory, electrokinetic phenomena, rheology of dispersions, surface/interfacial tension, solute absorption at gas-liquid, liquid-liquid, liquid-solid and gas-solid interfaces and properties of micelles and other microstructures.

**ENCH 471 Particle Science and Technology (3)** Credit will be granted for only one of the following: ENCH468I or ENCH471. Formerly ENCH 468I. Theory and modeling techniques for particle formation and particle size distribution dynamics. Science and technology of multiphase systems, powder and aerosol technology. Industrial, environmental and occupational applications: dry powder delivery of drugs, aerosol generation methods, nanoparticles, bio warfare agent detection, dry powder mixing, particulate emissions. Design particle synthesis and processing systems, particle removal systems.

**ENCH 472 Control of Air Pollution (3)** Credit will be granted for only one of the following: ENCH468D or ENCH472. Formerly ENCH 468D. Effects and sources of air pollutants, legislation and regulatory trends; meteorology, atmospheric dispersion models; distribution functions, particle size distributions; particulate control.

**ENCH 475 Ethics in Science and Engineering (3)** Senior standing. Credit will be granted for only one of the following: ENCH468E or ENCH475. Formerly ENCH 468E. Ethical issues in science and engineering and their resolutions. Scientific truth: proper data analysis, proper data presentation, and record-keeping. Human aspects: attribution, confidentiality, conflict of interests, mentoring and inclusion of underrepresented groups. Societal aspects: funding priorities, moral issues, responsibilities of engineers to clients, ecological issues, and human and animal subjects. Class meetings are organized around discussions, case studies, and student reports.

**ENCH 476 Statistics and Experiment Design (3)** Credit will be granted for only one of the following: ENCH468G or ENCH476. Formerly ENCH 468G. Intelligent design of experiments and statistical analysis of data. Probability, probability distribution, error analysis; data collection, sampling, graphing; variance, significant tests. Cluster analysis and pattern recognition. Factorial design, combinatorial methods.

**ENCH 482 Biochemical Engineering (3)** Prerequisite: ENCH440. Introduction to biochemical and microbiological applications to commercial and engineering processes, including industrial fermentation, enzymology, ultrafiltration, food and pharmaceutical processing and resulting waste treatment. Enzyme kinetics, cell growth, energetics and mass transfer.

**ENCH 483 Bioseparations (3)** Credit will be granted for only one of the following: ENCH483 or ENCH468A. Formerly ENCH 468A. Engineering fundamentals of separations and purification of biological molecules. Case studies and examples illustrate principles and practice of centrifugation, precipitation, crystallization, filtration, membrane separations, chromatography, and affinity separation of recombinant proteins and other biomolecules. Process scale-up and economics of biotechnology products and processes.

**ENCH 484 Environmental Biochemical Engineering (3)** Credit will be granted for only one of the following: ENCH468B or ENCH484. Formerly ENCH 468B. Interdisciplinary solutions to complex environmental contamination problems; basic biological and biochemical engineering principles as applied to bioremediation. Transport of contaminants in various environments, aerobic and anaerobic biodegradation, ex situ and in situ bioremediation reactor design, reaction kinetics, process optimization, and modeling. Current regulatory issues governing the use of bioremediation processes.

**ENCH 485 Biochemical Engineering Laboratory (3)** Six hours of laboratory per week. Prerequisite: ENCH482. Techniques of measuring pertinent parameters in fermentation reactors, quantification of production variables for primary and secondary metabolites such as enzymes and antibiotics, the insolubilization of enzymes for reactors, and the demonstration of separation techniques such as ultrafiltration and affinity chromatography.

**ENCH 490 Introduction to Polymer Science (3)** Prerequisites: ENCH424 and ENCH440. Also offered as ENMA495. Credit will be granted for only one of the following: ENCH490 or ENMA495. The elements of the chemistry, physics, processing methods, and engineering applications of polymers.

**ENCH 494 Polymer Technology Laboratory (3)** One hour of lecture and four hours of laboratory per week. Prerequisite: ENCH490. Polymer processing and characterization of polymer products. Extrusion, injection molding, blown film production with mechanical, thermal and rheological characterization.

**ENCH 495 Manufacturing with Polymers (3)** Prerequisite: ENES230. Credit will be granted for only one of the following: ENCH468M or ENCH495. Formerly ENCH 468M. Introduction to issues associated with the use, manufacturing and processing of polymers; blending of materials, design and production of a polymer formulation, characterization of material properties. Teams work on an open-ended design problem of producing and characterizing a polymer formulation for advanced materials use.

**ENCH 496 Processing of Polymer Materials (3)** Prerequisite: ENCH424. Also offered as ENMA496. Credit will be granted for only one of the following: ENCH496 or ENMA496. A comprehensive analysis of the operations carried out on polymeric materials to increase their utility. Conversion operations such as molding, extrusion, blending, film forming, and calendaring. Development of engineering skills required to practice in the high polymer industry.

**ENCH 497 Recycling of Waste Material (3)** Prerequisites: ENCH424 and ENCH426. Credit will be granted for only one of the following: ENCH468R or ENCH497. Formerly ENCH 468R. Introduction of municipal and industrial waste recycling technology. Unit operations and governing mathematical models for predicting equipment performance. Role of engineers in the recycling industry.

## ENCO – Engineering, Cooperative Education

**ENCO 098 Summer Co-op Work Experience (1)** Prerequisite: permission of department. For Engineering majors only. Cooperative Education (co-op) is an optional academic program that combines classroom theory with paid career-related work experience. Students must register for ENCO098 if they are working during a summer semester. Contact the Engineering Co-op & Career Services Office.

**ENCO 099 Co-Op Work Experience (1)** Prerequisite: permission of department. For Engineering majors only. Cooperative Education (co-op) is an optional academic program that combines classroom theory with paid career-related work experience. Students must register for ENCO099 if they are working during the Fall or Spring semesters. Contact the Engineering Co-op & Career Services Office.

## ENEE – Electrical & Computer Engineering

**ENEE 114 Programming Concepts for Engineering (4)** Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: ENES100. For ENEE majors (09090) only. Restricted to students with 60 or less cumulative semester hours. Principles of software development, high level languages, compiling and linking, pseudo-code, input/output, data types and variables, operators and expressions, conditionals and loops, functions, arrays, pointers, structure data types, memory allocation, introduction to algorithms, software projects, debugging, documentation. Programs will use the C language.

**ENEE 181 Explore Electronics (1)** Three hours of laboratory per week. Corequisite: MATH140. A highly structured introduction to electronics and circuitry with a hands-on approach to learning. Students will build electronic devices (some of which they can keep) and test them. Among the topics covered are AC and DC circuits, BJTs, op-amps and special projects involving communication and sensing.

**ENEE 204 Basic Circuit Theory (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: PHYS260 and PHYS261 (Formerly: PHYS262). Corequisite: MATH246. Basic circuit elements: resistors, capacitors, inductors, sources, mutual inductance and transformers; their I-V relationships. Kirchhoff's Laws. DC and AC steady state analysis. Phasors, node and mesh analysis, superposition, theorems of Thevenin and Norton. Transient analysis for first- and second-order circuits.

**ENEE 206 Fundamental Electric and Digital Circuit Laboratory (2)** One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE244. Corequisite: ENEE204. For ENEE majors 09090 only. Credit will be granted for only one of the following: ENEE206 or ENEE305. Formerly ENEE 305. Introduction to basic measurement techniques and electrical laboratory equipment (power supplies, oscilloscopes, voltmeters, etc.) Design, construction, and characterization of circuits containing passive elements, operational amplifiers, and digital integrated circuits. Transient and steady-state response. This course is a prerequisite to all upper level ENEE laboratories.

**ENEE 241 Numerical Techniques in Engineering (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH141; and {ENEE114 or CMSC106 or equivalent} Restricted to Engineering, Math and Physics majors only. Also offered as MATH 242. Credit will be granted for only one of the following: ENES240 or ENEE241 or MATH242. Formerly ENES 240. Introduction to error analysis, conditioning and stability of algorithms. Numerical solution of nonlinear equations. Vector spaces and linear transformations. Matrix algebra. Gaussian elimination. LU factorization, matrix inversion. Similarity transformations and diagonalization. Iterative computation of eigenvalues. Interpolation; splines; data fitting. Numerical integration.

**ENEE 244 Digital Logic Design (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENEE114 or CMSC106. Restricted to students with 09090 or 09991 major codes. Gates, flip-flops, registers and counters. Karnaugh map simplification of gate networks. Switching algebra. Synchronous sequential systems. PLA's. Elements of binary arithmetic units.

All lower-division CHEM, MATH, PHYS and Engineering courses that are required courses for the BS degree in Electrical Engineering must be completed before enrolling in any 300- or 400- ENEE course (except ENEE300 and ENEE301). Transfer students will be allowed one term to complete all such courses after starting to take upper-level ENEE courses.

**ENEE 302 Digital Electronics (3)** Prerequisite: ENEE204 and completion of all lower-division courses in the EE curriculum. Restricted to students with 09090 or 09991 major codes. See above note. Large signal terminal characteristics of PN junction diodes, Bipolar and MOSFET transistors. Digital electronics at transistor level: inverter, NAND, NOR AND, or gates. CMOS and TTL logic. Combinatorial and sequential digital circuits, memory design. Circuit simulation with SPICE.

**ENEE 303 Analog and Digital Electronics (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: A grade of "C" (2.0) or higher in ENEE204 and all other 200-level ENEE courses. Corequisite: ENEE307 must be taken concurrently. The grades for ENEE303 and ENEE307 will be combined into one grade. For ENEE and ENCP majors only and permission of department. Not open to students who have completed ENEE302 or ENEE312. Credit will be granted for only one of the following: ENEE302 or ENEE303. Conceptual operation of transistors and diodes. Large and small signal operation of BJTs and MOSFETs. Basic transistor configurations. Logic circuits and semiconductor memory. Multi-transistor circuits including differential amplifiers and current mirrors. Frequency response.

**ENEE 306 Electronic Circuits Design Laboratory (2)** One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE302. For ENEE majors 09090 only. Not open to students who have completed ENEE413. Formerly ENEE 413. Students will design, construct and test analog and digital circuits at the transistor level. Bipolar and field effect transistors will be covered. Circuits designed will include common emitter and differential amplifiers, active filter, TTL and CMOS logic gates. Students should gain much of the background required for the design of modern microelectronic circuits.

**ENEE 307 Electronic Circuits Design Laboratory (2)** One hour of lecture and three hours of laboratory per week. Prerequisite: A grade of "C" (2.0) or higher in ENEE204 and all other 200-level ENEE courses. Corequisite: ENEE303 must be taken concurrently. The grades for ENEE303 and ENEE307 will be combined into one grade. For ENEE and ENCP majors only and permission of department. Not open to students who have completed ENEE306. Credit will be granted for only one of the following: ENEE306 and ENEE307. Students will design and test analog and digital circuits at the transistor level. FETs and BJTs will be covered. The laboratory experiments will be tightly coordinated with ENEE303 lectures.

**ENEE 312 Semiconductor Devices and Analog Electronics (3)** Prerequisite: ENEE302 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. The basic physical operation of P-N junction diodes, MOSFET's and bipolar transistors. Basic transistor circuit configurations (CE, CC, CB, CS, CD, CG). DC bias; small signal analysis. Simple multi-transistor circuits: diff-amp; current mirror. Frequency response.

**ENEE 313 Introduction to Device Physics (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: A grade of "C" (2.0) or higher in ENEE204 and all other 200-level courses. For ENEE and ENCP majors only and permission of department. Credit will be granted for only one of the following: ENEE312 or ENEE313. Basic physics of devices including fields in solids, crystal structure, properties of electrons and holes. Current flow in Si using drift-diffusion model. Properties of the pn junction. Properties of devices including BJTs, FETs and their physical characteristics.

**ENEE 322 Signal and System Theory (3)** Prerequisite: ENEE204 and MATH246 and completion of all lower-division technical courses in the curriculum. See above note. For ENEE majors only. Concept of linear systems, state space equations for continuous systems, time and frequency domain analysis of signals and linear systems. Fourier, Laplace and Z transforms. Application of theory to problems in electrical engineering.

**ENEE 324 Engineering Probability (3)** Prerequisite: ENEE322 and completion of all lower-division technical courses in the EE curriculum. See above note. Electrical Engineering and Computer Engineering majors may not substitute STAT400 for ENEE324. Credit will be granted for only one of the following: BMGT231, STAT400, or ENEE324. These courses are not interchangeable, consult your program requirements or advisor for what is acceptable toward your program of study. Axioms of probability; conditional probability and Bayes' rules; random variables, probability distribution and densities; functions of random variables: weak law of large numbers and central limit theorem. Introduction to random processes; correlation functions, spectral densities, and linear systems. Applications to noise in electrical systems, filtering of signals from noise, estimation, and digital communications.

**ENEE 350 Computer Organization (3)** Prerequisite: ENEE244 and completion of all lower-division technical courses in the EE curriculum. See above note. For 09090 and 09991 majors only. Electrical Engineering and Computer Engineering majors may not substitute CMSC311 for ENEE350. Not open to students who have completed ENEE250. Formerly ENEE 250. Structure and organization of digital computers. Registers, memory, control and I/O. Data and instruction formats, addressing modes, assembly language programming. Elements of system software, subroutines and their linkages.

**ENEE 380 Electromagnetic Theory (3)** Prerequisites: MATH241, (PHYS270 and 271 {Former PHYS263}) and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to electromagnetic fields. Coulomb's law, Gauss's law, electrical potential, dielectric materials capacitance, boundary value problems, Biot-Savart law, Ampere's law, Lorentz force equation, magnetic materials, magnetic circuits, inductance, time varying fields and Maxwell's equations.

**ENEE 381 Electromagnetic Wave Propagation (3)** Prerequisite: ENEE380 and completion of all lower-division technical courses in the EE curriculum. See above note. For ENEE majors only. The electromagnetic spectrum: Review of Maxwell's equations; the wave equation potentials, Poynting's theorem, relationship between circuit theory and fields; propagation of electromagnetic waves in homogeneous media and at interfaces; transmission line theory, waveguides, radiation and antennas.

**ENEE 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**ENEE 407 Microwave-Circuits Laboratory (2)** One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE206 and ENEE381 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. Experiments concerned with circuits constructed from microwave components providing practical experience in the design, construction and testing of such circuits. Projects include microwave filters and S-parameter design with applications of current technology.

**ENEE 408 Capstone Design Project (3)** Prerequisite: permission of department. For 09090 and 09991 majors only. Repeatable to 6 credits if content differs. Culmination of prior course work in electrical and computer engineering. Utilization of modern design tools and methodologies for the design of components or systems under realistic constraints, with particular emphasis on teamwork and oral/written communication. Areas in which projects are currently offered include: microprocessor-based systems, digital systems, VLSI design (both digital and mixed-signal), and optical systems.

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**ENEE 416 Integrated Circuit Fabrication Laboratory (3)** One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE302 and completion of all lower-division technical courses in the EE curriculum. For 09090 and 09991 majors only. Not open to students who have completed ENEE419J. Formerly ENEE 419J. Characterization of wafers and fabrication steps. Oxide growth, lithography, dopant diffusion, and metal deposition and patterning will be discussed in the lectures and carried out in the lab in fabricating NMOS transistor circuits. The transistor characteristics will be measured and related to the fabrication parameters.

**ENEE 417 Microelectronics Design Laboratory (2)** One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE306 and ENEE312 and completion of all lower-division technical courses in the curriculum. For ENEE majors only. Senior capstone project laboratory, where student design and build fairly sophisticated circuits, mainly composed of discrete transistors and integrated circuits. Many of the projects are designed to require that students synthesize from what they have learned in many of the disciplines in electrical engineering. Students learn they can actually use their knowledge to build something very practical, which may include a high-fidelity amplifier, a radio, a memory cell, a transmitter, etc.

**ENEE 419 Topics in Microelectronics (1-3)** Prerequisite: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in microelectronics.

**ENEE 420 Communication Systems (3)** Prerequisite: ENEE324 and completion of all lower-division technical courses in the EE curriculum. See above note. Fourier series, Fourier transforms and linear system analysis; random signals, autocorrelation functions and power spectral densities; analog communication systems: amplitude modulation, single-sideband modulation, frequency and phase modulation, sampling theorem and pulse-amplitude modulation; digital communication systems pulse-code modulation, phase-shift keying, differential phase shift keying, frequency shift keying; performance of analog and digital communication systems in the presence of noise.

**ENEE 425 Digital Signal Processing (3)** Prerequisite: ENEE322 and completion of all lower-division technical courses in the EE curriculum. See above note. Sampling as a modulation process; aliasing; the sampling theorem; the Z-transform and discrete-time system analysis; direct and computer-aided design of recursive and nonrecursive digital filters; the Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT); digital filtering using the FFT; analog-to-digital and digital-to-analog conversion; effects of quantization and finite-word-length arithmetic.

**ENEE 426 Communication Networks (3)** Prerequisite: ENEE324 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. The main design issues associated with computer networks, satellite systems, radio nets, and general communication networks. Application of analytical tools of queuing theory to design problems in such networks. Review of proposed architectures and protocols.

**ENEE 428 Communications Design Laboratory (2)** One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE324 and completion of all lower-division technical courses in the EE curriculum. See above note. Corequisite: ENEE420 or ENEE425. For ENEE majors only. EE capstone design course. Exploring the signal processing and communication systems theoretical concepts presented in ENEE 420 Communication Systems and ENEE 425 Digital Signal Processing by implementing them on actual DSP based hardware in real time.

**ENEE 429 Topics in Communications (1-3)** Prerequisite: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in communications.

**ENEE 434 Introduction to Neural Networks and Signals (3)** Prerequisite: ENEE204 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to the generation and processing of bioelectric signals including structure and function of the neuron, membrane theory, generation and propagation of nerve impulses, synaptic mechanisms, transduction and neural coding of sensory events, central nervous system processing of sensory information and correlated electrical signals, control of effector organs, muscle contraction and mechanics, and models of neurons and neural networks.

**ENEE 435 Introduction to Electrical Processes, Structure and Computing (3)** Models of the Brain Prerequisite: ENEE204 and completion of all lower-division technical courses in the EE curriculum. Concepts, theoretical and experimental probing methods and models for understanding the human brain

structures and functions from an engineering viewpoint. Bioelectric phenomena of cells and electrical circuit functional models. Neurons as signal generators, decision elements, and information transmission and processing devices. Basic neural circuits and models. Experimental techniques, signal recording and analysis. Brain architecture-communication, control and information processing structures and functions. Memory, associations learning and higher brain functions. Computer simulations and computational models. Overview of brain-inspired intelligent machine approaches and systems.

**ENEE 439 Topics in Signal Processing (1-3)** Prerequisite: permission of department and completion of all lower division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in signal processing.

**ENEE 440 Microprocessors (3)** Prerequisite: ENEE350 and completion of all lower-division technical courses in the EE curriculum. See above note. For 09090 and 09991 majors only. Microprocessor architectures, instruction sets, and applications. Bus structures, memory, I/O interfacing. Assembly language programming, LSI device configuration, and the embedding of microprocessors in systems.

**ENEE 445 Computer Laboratory (2)** One hour of lecture and three hours of laboratory per week. Prerequisites: ENEE206 and ENEE350; and completion of all lower-division technical courses in the EE curriculum. For 09090 and 09991 majors only. This laboratory course focuses on the hardware/software interface in computer systems. Hand-on experiments are used to teach design, construction, analysis, and measurement of both hardware and software for embedded systems. Projects emphasize using microcontrollers for control, sensing, and communication through various I/O devices.

**ENEE 446 Digital Computer Design (3)** Prerequisite: ENEE350 and completion of all lower-division technical courses in the EE curriculum. See above note. Hardware design of digital computers. Arithmetic and logic units, adders, multipliers and dividers. Floating-point arithmetic units. Bus and register structures. Control units, both hardwired and microprogrammed. Index registers, stacks, and other addressing schemes. Interrupts, DMA and interfacing.

**ENEE 447 Operating Systems (3)** Prerequisites: ENEE350, experience in C or C++, and familiarity with UNIX, and completion of all lower-division technical courses in the EE curriculum. For 09090 and 09991 majors only. Not open to students who have completed ENEE459S. Formerly ENEE 459S. The goal of this course is to present the theory, design, implementation and analysis of computer operating systems. Through classroom lectures, homework, and projects, students learn the fundamentals of concurrency, and process management, interprocess communication and synchronization, job scheduling algorithms, memory management, input/output devices, file systems, and protection and security in operating systems. Optional topics may include communications protocols, computer security, and real-time operating systems.

**ENEE 459 Topics in Computer Engineering (1-3)** Prerequisite: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09091 majors only. Selected topics of current importance in computer engineering.

**ENEE 460 Control Systems (3)** Prerequisite: ENEE322 and completion of all lower-division technical courses in the EE curriculum. See note above. For ENEE majors only. Mathematical models for control system components. Transform and time domain methods for linear control systems. Introductory stability theory. Root locus, bode diagrams and Nyquist plots. Design specifications in the time and frequency domains. Compensation design in the time and frequency domain. Introduction to sampled data systems.

**ENEE 461 Control Systems Laboratory (2)** One hour of lecture and three hours of laboratory per week. Prerequisites: ENEE206, ENEE460 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. Projects to enhance the student's understanding of feedback control systems and to familiarize him with the characteristics and limitations of real control devices. Students will design, build, and test servomechanisms, and will conduct analog and hybrid computer simulations of control systems.

**ENEE 462 Systems, Control and Computation (3)** Prerequisite: ENEE322 and completion of all lower-division technical courses in the EE curriculum. See above note. Matrix algebra, state space analysis of discrete systems, state space analysis of continuous systems, computer algorithms for circuit analysis, optimization and system simulation.

**ENEE 463 Digital Control Systems (3)** Prerequisites: ENEE322 and completion of lower-division technical courses in the EE curriculum. For 09090 and 09991 majors only. Not open to students who have completed ENEE469E. Formerly ENEE 469E. Introduction to techniques for the analysis and design of linear control systems and implementation of control systems using digital technology. Topics include linearization, solution of linear equations, z-transforms and Laplace transforms, design of linear controllers, optimal control, and digital implementation of control designs. Students will use MATLAB for the solution of problems and the design of control systems.

**ENEE 469 Topics in Control (1-3)** Prerequisites: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in controls.

**ENEE 472 Electric Machines and Actuators (3)** Prerequisite: ENEE322; and ENEE380; and completion of all lower-division technical courses in the EE curriculum. See above note. Linear and nonlinear magnetic circuits, hysteresis and eddy current losses, transformers, induction motors, synchronous generators.

**ENEE 473 Electrical Machines Laboratory (2)** One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE206 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. See above note. Experiments involving single and three phase transformers, induction machines, synchronous machines and D.C. machines.

**ENEE 474 Power Systems (3)** Prerequisite: ENEE322 and completion of all lower-division technical in the EE curriculum. See above note. Interconnected power systems, transmission lines, load flow studies, unit commitment and economic dispatch. Three phase networks, machine models. Symmetrical components, fault analysis and unbalanced operation. Power system transients, stability and numerical methods in power system analysis.

**ENEE 475 Power Electronics (3)** Prerequisite: ENEE302 and completion of all lower-division technical courses in the EE curriculum. See above note. For ENEE majors only. This course is suitable for undergraduate and graduate students who want to learn the basic principles of power electronics and its applications. Special emphasis is placed on interdisciplinary nature of power electronics. Strong and intimate connections between power electronics and circuit theory, electronic circuits, semiconductor devices, electric power, magnetic, motor drives and control are stressed.

**ENEE 480 Fundamentals of Solid State Electronics (3)** Prerequisite: ENEE302 and completion of all lower-division technical courses in the EE curriculum. See above note. Crystal structure and materials preparation; carrier transport; elementary quantum mechanics applied to solids; band structure of metals, insulators, and semiconductors; field effect transistors; PN junctions; bipolar transistors; fabrication of devices.

**ENEE 481 Antennas (3)** Prerequisite: ENEE381 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to the concepts of radiation, generalized far field formulas; antenna theorems and fundamentals; antenna arrays, linear and planar arrays; aperture antennas; terminal impedance; propagation.

**ENEE 482 Design of Active and Passive Microwave Devices (3)** Prerequisite: ENEE381 and completion of all lower-division technical courses in the EE curriculum. See above note. Design and operation of passive and active microwave devices. The passive components include waveguides, resonators, and antennas. The active devices include klystrons, magnetrons, gyrotrons, and free electron lasers.

**ENEE 485 Loudspeaker Design (3)** One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE204 and ENEE206 and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. Senior standing. For ENEE majors only. EE capstone design course. Loudspeaker design and construction. Fundamental principles of loudspeaker and enclosure loading. Laboratory measurements of driver parameters and loudspeaker characterization. Analogy between acoustical and electrical circuits. Enclosure making. Room interaction. Students set goals, design, and construct a system, test and compare results with predictions.

**ENEE 486 Optoelectronics Lab (2)** One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE206 and (PHYS270 and 271 (Formerly: PHYS263)) and completion of all lower-division technical courses in the EE curriculum. Restricted to students with a 09090 major code. Hands-on experience in performing measurements in optics and electro-optics. Basics of optics, light detectors, Fourier optics, gratings and spectrometers, pulsed dye lasers, fiber optics, electro-optics, and acousto-optics.

## Approved Courses 199

**ENEE 489 Topics in Electrophysics (1-3)** Prerequisites: permission of department and completion of all lower-division technical courses in the EE curriculum. Repeatable to any number of credits if content differs. For 09090 and 09991 majors only. Selected topics of current importance in electrophysics.

**ENEE 490 Physical Principles of Wireless Communications (3)** Prerequisite: ENEE381 Restricted to ENEE and ENCP students. Not open to students who have completed ENEE498B. Credit will be granted for only one of the following: ENEE490 or ENEE498B. Formerly ENEE 498B.

**ENEE 496 Lasers and Electro-optic Devices (3)** Prerequisite: Completion of all lower-division technical courses in the EE curriculum. Corequisite: ENEE381 For 09090 and 09991 majors only. Modern physical optics: Gaussian beams, optical resonators, optical waveguides; theory of laser oscillation, rate equations; common laser systems. Selected modern optoelectronic devices like detectors and modulators. Role of lasers and optoelectronics in modern technology.

**ENEE 498 Topics in Electrical Engineering (1-3)** Prerequisites: permission of department and completion of all lower-division technical courses in the EE curriculum. See above note. Repeatable to any number of credits if content differs. For 09090 majors only. Formerly ENEE 488. Selected topics of current importance in electrical engineering.

**ENEE 499 Senior Projects in Electrical Engineering (1-3)** Hours to be arranged. Prerequisites: permission of instructor and department and completion of all lower-division technical courses in the EE curriculum. See above note. Repeatable to any number of credits if content differs. For 09090 majors only. Formerly ENEE 418. Theoretical and experimental projects.

### ENES – Engineering Science

**ENES 100 Introduction to Engineering Design (3)** One hour of lecture, two hours of laboratory, and two hours of discussion/recitation per week. Corequisite: MATH140. Students work as teams to design and build a product using computer software for word-processing, spreadsheet, CAD, and communication skills.

**ENES 102 Statics (3)** Two hours of discussion/recitation per week. Prerequisite: MATH140. For engineering majors only. Formerly ENES 110. The equilibrium of stationary bodies under the influence of various kinds of forces. Forces, moments, couples, equilibrium, trusses, frames and machines, centroids, moment of inertia, beams, and friction. Vector and scalar methods are used to solve problems.

**ENES 106 Job Search Strategies for Engineering Students (1)** For Engineering majors only. Credit will be granted for only one of the following: EDCP108J or ENES106. Formerly EDCP 108J. Course designed for engineering students seeking co-op or internship positions, although any interested engineering student may enroll. Learn and practice effective job search skill and techniques including writing resumes and cover letters, interviewing, evaluating job offers, negotiating salaries, transitioning from school to work, and making the most of your job experience.

**ENES 140 Discovering New Ventures (3)** Two hours of lecture and one hour of discussion/recitation per week. This course may count as an elective for a student at the University of Maryland, depending on the student's specific degree program. It cannot be counted towards the requirements for the Smith School of Business Entrepreneurship Fellow Program.. Students explore dynamic company startup topics by working in teams to design a new venture. This multi-disciplinary course helps students to learn the basic business, strategy, and leadership skills needed to launch new ventures. Topics include learning how to assess the feasibility of a startup venture, as well as how to apply best practices for planning, launching, and managing new companies. Students discuss a wide range of issues of importance and concern to entrepreneurs and learn to recognize opportunities, assess the skills and talents of successful entrepreneurs, and learn models that help them navigate uncertainty.

**ENES 160 Inventis Colloquium (1)** Restricted to Students in the Inventis Program. A colloquium on a variety of engineering topics. Attendance at various additional activities and events is required.

**ENES 170 Inventis - Professional Concepts in Engineering (1)** Restricted to students in the Inventis program. Engineering professional concepts course focusing on emerging technologies, career opportunities for engineering, ethics in engineering, engineering in the context of the society, and technological entrepreneurship.

**ENES 180 Dialogue with the Dean (1)** One hour of lecture per week. For new transfer and freshmen Engineering majors only. Introduction to Engineering as a Profession, Overview of Martin Institute and Clark School Education and Research Programs, The Future of Engineering and Engineering Education Basic Technological Literacy, Business and Entrepreneurship Issues

for Engineers, the Joy of Discovery, Student Projects: How to get involved, Research and Development Programs: How to get involved, what the corporate sector expects from a new engineering graduate.

**ENES 181 Dialogue with the Dean (1)** Prerequisite: New students only - Transfers and Freshmen. For ENGR majors only. Introduction to Engineering as a Profession, Overview of Martin Institute and Clark School Education and Research Programs, The Future of Engineering and Engineering Education, Basic Technological Literacy, Business and Entrepreneurship Issues for Engineers, the Joy of Discovery, Student Projects: How to get involved, Research and Development Programs: How to get involved, What the corporate sector expects from a new engineering graduate.

**ENES 190 Introduction to Design and Quality (4)** Three hours of lecture and two hours of discussion/recitation per week. Prerequisite: permission of College. Also offered as BMGT190. Credit will be granted for only one of the following: BMGT190 or ENES190. Expose engineering and business students to the principles of total quality, using experiential team learning and technology aided approaches. The first of four courses in total quality.

**ENES 220 Mechanics of Materials (3)** Prerequisites: ENES102; and MATH141; and PHYS161. For engineering majors only (not including ENEE majors). Stress and deformation of solids-rods, beams, shafts, columns, tanks, and other structural, machine and vehicle members. Topics include stress transformation using Mohr's circle; shear and moment diagrams; derivation of elastic curves; and Euler's buckling formula. Design problems related to this material are given in lab.

**ENES 221 Dynamics (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: ENES102 or ENES110; and MATH141; and PHYS161. Systems of heavy particles and rigid bodies at rest and in motion. Force-acceleration, work-energy and impulse-momentum relationships. Motion of one body relative to another in a plane and in space.

**ENES 230 Introduction to Materials and Their Applications (3)** Prerequisite: ENES100 or permission of department. Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Material selection in engineering applications.

**ENES 270 Inventis-Professional Skills in Engineering (1)** Restricted to students in the Inventis program. Prerequisite: ENES170. Engineering professional skills course focusing on team building, communication skills, technical writing, technology management, and intellectual property and standards.

**ENES 380 Methods for Measuring Quality (3)** Prerequisite: BMGT190 or ENES190. Also offered as BMGT290. Provides engineering and business students an understanding of the need and use of measurement techniques that lead to continuous improvement. The second course of four courses in total quality.

**ENES 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**ENES 388 Engineering Honors Seminar (1)**

**ENES 389 Selected Topics (3)** Repeatable to 6 credits if content differs.

**ENES 390 Competing on Quality in a Global Economy (3)** Prerequisite: BMGT290 or ENES380. Also offered as BMGT390. Examines strategic quality management in a globalized setting. Global marketing, international finance, and cross-cultural concepts will be emphasized. The third of four courses in total quality.

**ENES 435 Product Liability and Regulation (3)** Junior standing. Key topics include, biotechnology, safety regulation, federal preemption, product liability, professional negligence, antitrust, privacy and information technology, risk modeling, environmental protection, patent, copyright, trade secrets, reverse engineering, scientific and technological evidence, international trade, engineering ethics. Examples include plane crashes, computer chip protection, human machine interfaces, nuclear power plants, internet censorship, flood control, earthquakes and biomedical technology.

**ENES 458 Topics in International Engineering (1-3)** Prerequisite: ENES100. Repeatable to 12 credits if content differs. A variety of topics related to engineering in a global context are discussed including cultural aspects, cross-cultural communication, international standards and law, and engineering and technology issues, business behavior, attitudes and values of selected countries and regions.

**ENES 460 Fundamentals of Technology Start-Up Ventures (3)** Also offered as BUSI758A. Formerly ENES 489A. Fundamental aspects of creating, organizing, funding, managing, and growing a technology startup venture. This multidisciplinary course will draw on management, business, legal, financial, as well as technical, concepts. Students form teams and develop a business plan for a technology company, based on each team's own business idea and then present the plan to a panel of outside experts.

**ENES 472 International Business Cultures in Engineering and Technology (3)** Sophomore standing. Also offered as SLLC472. Credit will be granted for only one of the following: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472 or SLLC473. Formerly ARHU 439T. The goal of this course is to provide students with an understanding of cultural aspects pertaining to global business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the business world. Students will gain an understanding of how the business cultures in the rest of the world diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

**ENES 478 Topics in Engineering Education (1)** Restricted to students in Engr Teaching Fellow Program. Repeatable to 3 credits if content differs. Topics related to teaching engineering courses, particularly project-based courses. Topics can include learning styles, student development theory, multicultural issues in teaching, facilitating team experiences, assessment, and academic integrity.

**ENES 480 Engineering Honors Seminar I (1)** Prerequisite: membership in College of Engineering Honors. Junior standing. Introduction to engineering leadership, professionalism, and ethics. Discussions of leadership style, elements of success, professional communication, codes of ethics, handling of ethical dilemmas, and the characteristics of a professional.

**ENES 481 Engineering Honors Seminar II (1)** Prerequisite: membership in College of Engineering Honors. Junior standing. Introduction to engineering creativity and innovation in engineering. Application of methods of creativity to topics in communication, conducting research, and leadership.

**ENES 489 Special Topics in Engineering (3-6)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Special topics in engineering.

**ENES 490 The Total Quality Practicum (3)** Prerequisite: BMGT390 or ENES390. Also offered as BMGT490. Credit will be granted for only one of the following: BMGT490 or ENES490. Capstone course for the four course total quality program. Based on a major project undertaken by student teams in an industry environment emphasizing integrative aspects of total quality, each project will be supervised by a joint faculty/industry team with differing areas of expertise.

**ENES 496 NASA Academy (4)** Two hours of lecture and four hours of laboratory per week. Prerequisite: College Permission. Junior standing. Also offered as CMPS496 or GEOG496. Credit will be granted for only one of the following: CMPS496, ENES496 or GEOG496. A ten-week resident summer institute at Goddard Space Flight Center for juniors, seniors and first-year graduate students interested in pursuing professional and leadership careers in aerospace-related fields. The national program includes research in a Goddard laboratory, field trips to NASA centers, and a combination of lectures and workshops on the mission, current activities and management of NASA. Students interested in the Academy will find information at <http://nasa-academy.nasa.gov> Application should be made by the end of January; sponsorship by an affiliated State Space Grant Consortium is customary, but not required.

**ENES 498 Special Topics in Entrepreneurship (3)** Two hours of lecture per week. Prerequisite: Hinman CEO's membership. Repeatable to 12 credits if content differs. This entrepreneurship seminar and case study-based course will explore technology entrepreneurship with a focus on leadership, marketing, team-building, and management of new technology ventures and assumes baseline knowledge of entrepreneurship. Students will learn skills needed to succeed as a technology entrepreneur and how to apply best practices for planning, launching, and growing new companies. This course is a requirement of the Hinman CEOs program.

**ENES 508 Engineering Professional Development for Teachers (1-6)** Two hours of lecture and three hours of laboratory per week. Prerequisite: permission of department. For non-engineering majors only. Repeatable to 6 credits if content differs. An introduction to the fundamental concepts that underlie engineering and the process that engineers use in solving technological problems and in design work. Problems in experimental analysis are demonstrated through laboratory experiments. The laboratory work provides the basis for introductory design.

## 200 Approved Courses

### ENFP – Engineering, Fire Protection

**ENFP 108 Hot Topics in Fire Protection Engineering (1)** Repeatable to 2 credits if content differs. Current issues of importance to fire protection engineering. Topics focus on advances in basic fire science, computerized fire modeling, safety systems, human behavior and fire, fire toxicity, risk analysis, performance based fire safety, fire reconstruction, arson and evidence, voluntary fire safety standards, codes, and relations with other disciplines including architecture and the built environment, loss prevention and fire insurance.

**ENFP 210 Fire and Western Culture (3)** Fire and Western Culture: Human interaction with fire as both destructive and productive force from ancient cultures to the present. Fire in war, agriculture, religion, art, industry, philosophy, science, urban development, engineering, criminal law, including arson and modern environmental protection.

**ENFP 250 Introduction to Life Safety Analysis (3)** Prerequisite: permission of department. Credit will be granted for only one of the following: ENFP421 or ENFP250. Formerly ENFP 251. Introduction to fire protection engineering and building regulation, building safety systems, and egress system design. Evacuation modeling. Human behavior in fires. Tenability Analysis.

**ENFP 255 Fire Alarm and Special Hazards Design (3)** Prerequisite: permission of department. Formerly ENFP 315. Study of fire detection and alarm and gaseous and particulate fire suppression systems. Examination and evaluation of design criteria, performance specifications and research. Application of elementary fluid theory to the design and calculation procedures for gaseous and particulate fire suppression systems. An integrated fire protection systems design project.

**ENFP 300 Fire Protection Fluid Mechanics (3)** Prerequisites: MATH246 and (PHYS260 and PHYS261 (Formerly: PHYS262)). Basic principles of fluid flow. Properties of a fluid, velocity field, flow patterns. Pressure distribution in a fluid. Hydrostatic and hydrodynamic problems. Integral relations for control volumes. Differential relations, dimensional analysis and similarity. Internal and external flow problems associated with fire protection systems and fire scenarios.

**ENFP 310 Water Based Fire Protection Systems Design (3)** Prerequisite: ENFP300 and permission of department. Corequisite: ENFP312. Introduction to aqueous fire suppression. Discussion of key fluid dynamics and heat transfer processes in aqueous fire suppression. System design and performance analysis based on national standards, hydraulic theory and elementary fluid dynamics and heat transfer.

**ENFP 312 Heat and Mass Transfer (3)** Prerequisites: (ENCH300, ENME320 or ENME232) and (ENFP300, ENCE330 or ENME331). Fundamentals of heat and mass transfer. Conduction, convection, radiation modes of heat transfer. Diffusion concepts and evaporation phenomena. Problem solving techniques with application to fire problems.

**ENFP 320 Fire Assessment Methods and Laboratory (4)** Three hours of lecture and two hours of laboratory per week. For ENFP majors only. Experimental evaluation of ignition, flame spread, rate of heat release and smoke production of furnishings and interior finish materials.

**ENFP 350 Professional Development Seminar (1)** One hour of lecture, discussion, seminar or invited speakers per week. Prerequisite: permission of department. Senior standing. Not open to students who have completed ENFP450. Credit will be granted for only one of the following: ENFP350 or ENFP450. Formerly ENFP 450. An integrative, upper level professional development seminar covering topics such as engineering ethics, professional licensing, codes and standards, intellectual property, career selection and various contemporary issues in fire protection engineering.

**ENFP 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**ENFP 405 Structural Fire Protection (3)** Prerequisite: ENES220. For ENFP majors only. Effects of elevated temperature on structural materials; steel, concrete, wood, gypsum, glass and reinforced plastics. Experimental evaluation of fire resistance of building assemblies. Analytical methods to evaluate fire resistance of structural members.

**ENFP 411 Fire Risk Assessment (3)** Prerequisites: ENFP250, ENFP255 and permission of department. Appraisal and measurement of fire safety. Application of systems analysis, probability theory, engineering economy, and risk management in the identification and synthesis of components of fire protection engineering. Methods for the development of criteria for the design, evaluation and assessment of fire safety or component hazards.

**ENFP 415 Fire Dynamics (3)** Prerequisites: ENFP300 or ENME331; and ENME320; and ENFP312 or permission of department. Introduction to premixed and diffusion flames; ignition, flame spread and rate of burning; fire plumes; flame radiation.

**ENFP 416 Problem Synthesis and Design (3)** Senior standing. Techniques and procedures of problem orientation and solution design utilizing logical and numerical procedures. Student development of research projects in selected areas.

**ENFP 425 Fire Modeling (3)** Prerequisite: permission of department. Senior standing. For ENFP majors only. An introduction to the elements of enclosure fires through the development of fire modeling algorithms and the application of computer-based fire modeling techniques. Numerical techniques, including curve-fitting, root-finding, integration and the solution of ordinary differential equations, are developed in the context of enclosure fire modeling applications. Math software packages, including primarily spreadsheet programs, are used to address and solve a variety of enclosure fire problems.

**ENFP 429 Independent Studies (1-3)** Prerequisite: permission of department. For ENFP majors only. Repeatable to 6 credits if content differs. For students who have definite plans for individual study of approved problems, or study of an advanced topic selected in conjunction with the faculty.

**ENFP 431 Building Safety and the Law (3)** Junior standing. Responding to natural and manufactured building hazards requires a complex legal environment, including regulation and liability. Key topics include the use of model codes, administrative regulation, retrospective codes, federal preemption, arson, performance based codes, risk based regulation, engineering malpractice, product liability and disaster investigation.

**ENFP 435 Product Liability and Regulation (3)** Junior standing. Key topics include, biotechnology, safety regulation, federal preemption, product liability, professional negligence, antitrust, privacy and information technology, risk modeling, environmental protection, patent, copyright, trade secrets, reverse engineering, scientific and technological evidence, international trade, engineering ethics. Examples include plane crashes, computer chip protection, human machine interfaces, nuclear power plants, internet censorship, flood control, earthquakes and biomedical technology.

**ENFP 489 Special Topics (3)** Prerequisite: permission of department. Repeatable to 6 credits. Selected topics of current importance to fire protection.

### ENGL – English

**ENGL 101 Introduction to Writing (3)** An introductory course in expository writing.

**ENGL 181 English Grammar (1)** Not open to students who have completed ENGL281 or JOUR181. Credit will be granted for only one of the following: ENGL181 or JOUR181. The basic structure of formal written English, including parts of speech, sentence patterns, standard punctuation, diction, and usage.

**ENGL 201 Literature of the Western World I: Ancient and Medieval (3)** Readings of authors, works, and genres, largely continental, in the early Western literary tradition. Readings such as selections from the Bible, Homer, Sophocles, Aeschylus, Sappho, Virgil, Ovid, Seneca, Augustine, Dante, medieval romance.

**ENGL 202 Literature of the Western World II: Renaissance to Modern (3)** Readings of major authors, works, and genres, largely continental, in the late Western literary tradition. Readings may include Cervantes, Calderon, Moliere, Voltaire, Goethe, Dostoevsky, Ibsen, Chekhov, Flaubert, Sand, Camus, drama, the rise of the novel.

**ENGL 205 Introduction to Shakespeare (3)** Recommended for non-majors. Reading of representative works. Genre, action, character, theme, language, and staging. Shakespeare's relation to Renaissance culture.

**ENGL 210 Love, Adventure, and Identity in Early English Literature (3)** The themes of love, evil, adventure, heroism and others as they are revealed in the early English epic, romance and novel. Texts include Beowulf, Sir Gawain and the Green Knight, Othello, Robinson Crusoe, and others.

**ENGL 211 English Literature: Beginnings to 1800 (3)** Surveys medieval and early modern literary works written in England. Readings may include Beowulf, Chaucer, Spenser, Mary Wroth, Milton; eighteenth-century satire, drama, novels.

**ENGL 212 English Literature: 1800 to the Present (3)** Surveys the major literary movements of the period, from Romantic to Victorian to Modern. Such authors as Wordsworth, Keats, Bronte, Tennyson, Browning, Yeats, Joyce, Woolf.

**ENGL 221 American Literature: Beginning to 1865 (3)** Surveys American writing from the founding of the colonies through the Civil War. Authors such as Taylor, Cooper, Poe, Dickinson.

**ENGL 222 American Literature: 1865 to Present (3)** Surveys American writing from the Civil War through the Cold War. Authors such as Clemens, Frost, Hurston, Bellow.

**ENGL 233 Introduction to Asian American Literature (3)** Also offered as AAST233. Not open to students who have completed AAST233 or AAST298L. Credit will be granted for only one of the following: AAST233, AAST298L or ENGL233. A survey of Asian American literatures with an emphasis on recurrent themes and historical context.

**ENGL 234 Introduction to African-American Literature (3)** A survey of African-American literature from the late 18th century to the present.

**ENGL 235 Introduction to the Literatures of the African Diaspora (3)** Not open to students who have completed CMLT235. Credit will be granted for only one of the following: CMLT235 or ENGL235. Authors, periods, and genres that reflect the diversity of African and African Diaspora cultures.

**ENGL 240 Introduction to Fiction, Poetry, and Drama (3)** Not open to students who have completed ENGL102. Readings in the novel, short story, poetry and drama.

**ENGL 241 Introduction to the Novel (3)** Historical, formal, social questions about the genre. Readings drawn from a range of cultures and communities.

**ENGL 243 Introduction to Poetry (3)** How poetry works. Focus on style, subject, rhythm, voice, technique and structure. Readings from a range of cultures and communities.

**ENGL 244 Introduction to Drama (3)** A survey of the basic literature of drama from the classical Greeks to modern times.

**ENGL 245 Film and the Narrative Tradition (3)** Primary attention is on the film as a narrative medium, but other literary models will be examined.

**ENGL 250 Introduction to Literature by Women (3)** Also offered as WMST255. Credit will be granted for only one of the following: ENGL250 or WMST255. Images of women in literature by and about women.

**ENGL 260 Introduction to Folklore (3)** Surveys a wide range of folklore genres; history and theory of folklore.

**ENGL 262 The Hebrew Bible: Narrative (3)** Also offered as JWST262. Not open to students who have completed HEBR223. Credit will be granted for only one of the following: ENGL262 or JWST262. Formerly HEBR 223. Selected readings from narrative sections of the Hebrew Bible stressing the new literary approaches to the biblical text. In English; no knowledge of Hebrew required.

**ENGL 263 The Hebrew Bible: Poetry and Prophecy (3)** Also offered as JWST263. Not open to students who have completed HEBR224. Credit will be granted for only one of the following: ENGL263 or JWST263. Formerly HEBR 224. Readings of poetic and prophetic selections from the Hebrew Bible. Analysis of devices and their rhetorical effort. Comparison of biblical poetry with other poetry of the ancient near East. In English; no knowledge of Hebrew required.

**ENGL 265 Introduction to Lesbian, Gay, and Bisexual Literature (3)** Also offered as LGBT265. Not open to students who have completed LGBT265. Credit will be granted for only one of the following: ENGL265 or LGBT265. A study of the pervasiveness of homoeroticism in literature from the Renaissance to the present. Emphasis on recurrent themes and motifs and the struggle to find voice within a context of stigma, suppression, and silence. Writers might include Shakespeare, Walt Whitman, Emily Dickinson, Oscar Wilde, Willa Cather, James Baldwin, Audre Lorde, Adrienne Rich.

**ENGL 277 Mythologies: An Introduction (3)** Introduction to the myths of Europe, Asia, Oceania, the Middle East, Africa and North and South America.

**ENGL 278 Special Topics in Literature (3)** Repeatable to 9 credits if content differs.

**ENGL 280 Introduction to the English Language (3)** Facts and phenomena of the English language; basic concepts and instruments useful for the analysis of literary and rhetorical uses of English. Potential topics include the history of English, its metrics, lexical patterns, common rhetorical devices, literary genres and its role as an international language.

**ENGL 281 Standard English Grammar, Usage, and Diction (3)** The basic structure of written English, including parts of speech, sentence patterns, standard punctuation, diction, and usage.

## Approved Courses 201

**ENGL 282 Introduction to Rhetorical Theory (3)** Basic elements of rhetorical theory. Classical and contemporary perspectives on the nature, functions, and scope of rhetoric. Potential texts for analysis include non-fiction prose, novels, short fiction, philosophical treatises, autobiographies, biographies, and speeches.

**ENGL 291 Intermediate Writing (3)** Writing essays, the revision process, and editing techniques.

**ENGL 294 Introduction to Creative Writing (3)** Writing of fiction and poetry, with special attention to elements of style and craft. Selected readings, frequent writing exercises, workshop format.

**ENGL 296 Beginning Fiction Workshop (3)** Writing of fiction, with special attention to the elements of style and craft. Selected readings, frequent writing exercises, workshop format.

**ENGL 297 Beginning Poetry Workshop (3)** Writing of poetry, with special attention to the elements of style and craft. Selected readings, frequent writing exercises, workshop format.

**ENGL 301 Critical Methods in the Study of Literature (3)** For English or English Education Majors, or English Minors. An introduction to the techniques of literary analysis and a brief survey of the most common approaches to literature.

**ENGL 302 Medieval Literature in Translation (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Surveys major works of English and continental Middle Ages. Readings may include romance, lyric and drama, Germanic epic, works of Dante, Chretien de Troyes, Jean de Meun, Christine de Pisan, Malory, English and continental mystics.

**ENGL 304 The Major Works of Shakespeare (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Not open to students who have completed ENGL403 and ENGL404. Representative early, middle, and later works, including comedies, tragedies, histories, and romances. Historical and cultural contexts.

**ENGL 305 Shakespeare and His Contemporaries: An Introduction (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Readings in Shakespeare and contemporaries such as Marlowe, Dekker, Middleton, Jonson, Webster, Chapman, Marston. Elizabethan and Jacobean theatrical and social contexts.

**ENGL 310 Medieval and Renaissance British Literature (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Detailed study of selected major medieval and Renaissance works written in England. Cultural attitudes and historical contexts. May include Beowulf, Anglo-Saxon lyric, drama, sonnets; works of women writers, Chaucer, Spenser, Sidney. Some readings in Middle English.

**ENGL 311 British Literature from 1600 to 1800 (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. The culture of seventeenth and eighteenth-century Britain seen through detailed study of selected major texts. Drama, poetry, political writings, and early novels by men and women. Authors may include Donne, Milton, Jonson, Behn, Swift, Pope, Montagu, and Wollstonecraft.

**ENGL 312 Romantic to Modern British Literature (3)** Detailed study of selected major texts from the 19th and 20th centuries. Transitions from Romanticism to Victorian age to Modernism. Historical, social, literary contexts. Issues such as rise of democracy; industrial revolution; the “woman question”; revolutions in literary form. Authors might include Wordsworth, Austen, Dickens, Arnold, T.S. Eliot, Woolf.

**ENGL 313 American Literature (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. A detailed study of selected major texts of American literature from the 17th century to the 20th century. Issues such as race, gender, and regionalism. Authors such as Franklin, Hawthorne, Dickinson, Hemingway, and Morrison.

**ENGL 339 Native American Literature (3)** Prerequisite: Two lower level English classes, at least one in literature; or permission of department. Repeatable to 9 credits if content differs. Study of selected writers or particular themes or genres in Native American literatures.

**ENGL 345 Twentieth Century Poetry (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Not open to students who have completed ENGL445 or ENGL446. Major British and American poets of the twentieth century.

**ENGL 348 Literary Works by Women (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Repeatable to 6 credits if content differs. Also offered as WMST348. Credit will be granted for only one of the following: ENGL348 or WMST348. The context, form, style and meaning of literary works by women.

**ENGL 349 Asian American Literatures (3)** Prerequisite: Two lower level English classes, at least one in literature; or permission of department. Repeatable to 9 credits if content differs. Study of selected writers, particular themes, or genres in Asian American literatures.

**ENGL 359 Special Topics in Lesbian, Gay, and Bisexual Literatures (3)** Prerequisites: Two lower-level English courses, at least one in literature; or permission of department. Repeatable to 9 credits if content differs. Study of selected writers or particular themes in Lesbian, Gay, and Bisexual Literatures.

**ENGL 360 African, Indian and Caribbean Writers (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Selected writers from countries formerly colonies of Britain, France, Denmark, etc. Attention to ways regions have developed distinctive political and aesthetic values resulting from indigenous traditions and foreign influences.

**ENGL 362 Caribbean Literature in English (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Political and literary traditions that intersect in the fiction, poetry, and drama written in English by Caribbean writers, primarily during the 20th century.

**ENGL 368 Special Topics in the Literature of Africa and the African Diaspora (3)** Prerequisite: two lower-level courses, at least one in literature; or permission of department. Repeatable to 9 credits if content differs. Comparisons among the literary traditions in Africa, the Caribbean, and North and South America.

**ENGL 370 Junior Honors Conference (1)** Prerequisite: candidacy for honors in English. Preparation for writing the senior honors project.

**ENGL 373 Senior Honors Project (2)** Prerequisite: ENGL370. For ENGL majors only. Research and writing of senior honors project. Strongly recommended for students planning graduate work.

**ENGL 377 Medieval Myth and Modern Narrative (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Not open to students who have completed ENGL361. Formerly ENGL 361. Literary patterns characteristic of medieval myth, epic, and romance; their continuing vitality in modern works; and links between Medieval works like “The Prose Edda”, “Beowulf”, “The Morte D’Arthur”, “The Volsunga Saga”, and “Grettis Saga” and modern narratives like Tolkien’s “The Lord of the Rings”.

**ENGL 379 Special Topics in Literature (3)** Prerequisite: two lower-level English courses, at least one in literature; or permission of department. Repeatable to 9 credits if content differs.

**ENGL 381 MGA Legislative Seminar (3)** Prerequisite: permission of department. Classroom analysis component of the Maryland General Assembly internship program.

**ENGL 383 The Uses of Language (3)** Exploration of the social and political aspects of language use, including conversational behavior, persuasive uses of language, social dialects, and language and gender; analytical methods of pragmatics/discourse analysis.

**ENGL 384 Concepts of Grammar (3)** Introduction to the basic units of grammatical description; motivation for and nature of constituent structure and syntactic categories; fundamental grammatical concepts employed in the teaching and learning of languages.

**ENGL 385 English Semantics (3)** An introductory study of meaning in language and paralanguage. General semantics, kinesics, linguistic relativity and recent developments in linguistic semantics.

**ENGL 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student’s internship sponsor. Junior standing.

**ENGL 388 Writing Internship (1-6)** Prerequisite: permission of department. Repeatable to 9 credits. Credit will be granted for only one of the following: ENGL380 or ENGL388. Formerly ENGL 380. Field work in English.

**ENGL 391 Advanced Composition (3)** Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. An advanced composition course which emphasizes constructing written arguments accommodated to real audiences.

**ENGL 392 Advanced Composition: Pre-Law (3)** Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. Techniques of argumentation and persuasion. Intensive practice to help writers achieve stylistic flexibility and correctness.

**ENGL 393 Technical Writing (3)** Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. The writing of technical papers and reports.

**ENGL 394 Business Writing (3)** Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. Intensive practice in the forms of written communication common in the business world—letters, memos, short reports, and proposals. Principles of rhetoric and effective style.

**ENGL 395 Writing for Health Professions (3)** Prerequisite: 60 credits and completion of ENGL101 or equivalent. This course satisfies the professional writing requirement. Focus on accommodating technical material and empirical studies to lay audiences, and helping writers to achieve stylistic flexibility and correctness.

**ENGL 396 Intermediate Fiction Workshop (3)** Prerequisite: permission of department. Practice in the craft of writing fiction, with special attention to the revision process. Selected readings, frequent writing exercises, workshop format.

**ENGL 397 Intermediate Poetry Workshop (3)** Prerequisite: permission of department. Practice in the craft of writing poetry, with special attention to the revision process. Selected readings, frequent writing exercises, workshop format.

**ENGL 399 Senior Seminar (3)** Limited to graduating English majors, to be taken in the last year of the undergraduate program, normally following completion of the core courses. Topics will vary each semester; most will be interdisciplinary or will cross historical periods. The course will provide a seminar experience in material or methodologies not otherwise available to the major.

**ENGL 402 Chaucer (3)** Prerequisite: two English courses in literature or permission of department. Works read in Middle English. Readings may include Canterbury Tales, Troilus and Criseyde, dream visions, lyrics.

**ENGL 403 Shakespeare: The Early Works (3)** Prerequisite: two English courses in literature or permission of department. Close study of selected works from the first half of Shakespeare’s career. Generic issues of early histories, comedies, tragedies. Language, theme, dramatic technique, sources, and early modern English social-historical context.

**ENGL 404 Shakespeare: The Later Works (3)** Prerequisite: two English courses in literature or permission of department. Close study of selected plays from the second half of Shakespeare’s career. Generic issues of later tragedies, later comedies, romances. Language, theme, dramatic technique, sources, and early modern English social-historical context.

**ENGL 407 Non-dramatic Literature of the Sixteenth Century (3)** Prerequisite: two English courses in literature or permission of department. Poetic and prose genres—utopia, epic, narrative, lyric, sonnet, oration, epistle, sermon, apologia—in context of the literary and intellectual life of the sixteenth century. Writers such as More, Wyatt, Surrey, Sidney, and Spenser.

**ENGL 408 Literature by Women Before 1800 (3)** Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as WMST408. Credit will be granted for only one of the following: ENGL408 or WMST408. Selected writings by women in the medieval and early modern era.

**ENGL 410 Edmund Spenser (3)** Prerequisite: two English courses in literature or permission of department. Selected works of Edmund Spenser in their literary, social, and historical contexts. Special attention to The Faerie Queene; also sonnets and lyric poetry.

**ENGL 412 Literature of the Seventeenth Century, 1600-1660 (3)** Prerequisite: two English courses in literature or permission of department. Works from early Stuart through Interregnum period. Major literary genres in historical contexts. Writers such as Donne, Jonson, Mary Worth, Bacon, Browne, and Marvell.

**ENGL 414 Milton (3)** Prerequisite: two English courses in literature or permission of department. Poetry and major prose in their social, political, and literary-historical contexts. Special attention to Paradise Lost. Other works may include Samson Agonistes and shorter poems.

**ENGL 415 Literature of the Seventeenth Century, 1660-1700 (3)** Prerequisite: two English courses in literature or permission of department. English poetry, drama, fiction, and non-fiction written from the Restoration of Charles II to 1700. Attention to increasing literacy and publication and greater involvement by women in literary production. Authors include Milton, Dryden, Congreve, and Behn.



## 202 Approved Courses

**ENGL 416 Literature of the Eighteenth Century, 1700-1750 (3)** Prerequisite: two English courses in literature or permission of department. British literary traditions, including the poetry of Pope, the prose of Swift, the correspondence of Montagu, the drama of Gay, and early novels by Defoe, Richardson, and Fielding.

**ENGL 417 Literature of the Eighteenth Century, 1750-1800 (3)** Prerequisite: two English courses in literature or permission of department. British poetry, drama, fiction, and nonfiction, emphasizing innovative forms and attitudes in genres such as the gothic novel and political writings, as well as more traditional works. Authors include Johnson, Burney, Sterne, Burke, and Wollstonecraft.

**ENGL 418 Major British Writers before 1800 (3)** Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

**ENGL 419 Major British Writers after 1800 (3)** Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

**ENGL 420 English Romantic Literature (3)** Prerequisite: two lower level English courses, at least one in literature; or permission of department. British poetry, drama, fiction, and criticism c.1790 to c.1830, a period of dramatic social change and revolution in literature, philosophy, the arts, industry, and politics. Authors include Austen, Wordsworth, Coleridge, Keats, Byron, Percy, and Mary Shelley.

**ENGL 422 English Victorian Literature (3)** Prerequisite: two lower level English courses, at least one in literature; or permission of department. A survey of English literature of the Victorian period. Writers may include Arnold, Browning, Tennyson, Dickens, George Eliot, Carlyle, Ruskin, Newman, Wilde.

**ENGL 425 Modern British Literature (3)** Prerequisite: two English courses in literature or permission of department. Major Modernist writers in English prose and poetry since 1900. Such writers as Eliot, Larkin, Forster, Burgess, Durrell, Henry Green, Golding, Auden, Malcolm Lowry, Joyce, and Yeats.

**ENGL 428 Seminar in Language and Literature (3)** Junior standing. For ENGL majors only. Repeatable to 9 credits if content differs. Topics will vary each semester. The course will provide a seminar experience in material or methodologies not otherwise available to the major.

**ENGL 429 Independent Research in English (1-6)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Designed to provide qualified majors in English an opportunity to pursue specific English readings under the supervision of a member of the department.

**ENGL 430 American Literature, Beginning to 1810, the Colonial and Federal (3)** Periods Prerequisite: two English courses in literature or permission of department. Puritanism, the Enlightenment, early Romanticism. Writers such as Bradstreet, Franklin, Brown.

**ENGL 431 American Literature: 1810 to 1865, the American Renaissance (3)** Prerequisite: two English courses in literature or permission of department. Nationalism, Sentimentalism, Transcendentalism. Writers such as Douglass, Stowe, Melville.

**ENGL 432 American Literature: 1865 to 1914, Realism and Naturalism (3)** Prerequisite: two English courses in literature or permission of department. Reconstruction, Realism, Naturalism. Representative writers such as Dickinson, James, Dreiser.

**ENGL 433 American Literature: 1914 to the Present, the Modern Period (3)** Prerequisite: two English courses in literature or permission of department. Modernism, Postmodernism. Writers such as Stevens, Stein, Ellison.

**ENGL 434 American Drama (3)** Prerequisite: two English courses in literature or permission of department. American drama from late eighteenth-century to the present; emphasis on theater of the twentieth century. Authors such as Tyler, O'Neill, Hellman, Hansberry, and Albee.

**ENGL 435 American Poetry: Beginning to the Present (3)** Prerequisite: two English courses in literature or permission of department. Selections of American poetry, from Bradstreet to contemporary free verse. Authors such as Whitman, Dickinson, Bishop, Hughes, Rich, and Frost.

**ENGL 437 Contemporary American Literature (3)** Prerequisite: two English courses in literature or permission of department. Prose, poetry, drama of living American writers. Current cultural and social issues.

**ENGL 438 Major American Writers before 1865 (3)** Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

**ENGL 439 Major American Writers after 1865 (3)** Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

**ENGL 440 The Novel in America to 1914 (3)** Prerequisite: two English courses in literature or permission of department. Survey of the American novel to World War I. Cultural and philosophical contexts; technical developments in the genre. Authors such as Melville, Wells Brown, James, Sedgwick, Chopin.

**ENGL 441 The Novel in America Since 1914 (3)** Prerequisite: two English courses in literature or permission of department. Survey of the American novel since World War I. Cultural and philosophical contexts, technical developments in the genre. Authors such as Hemingway, Cather, Faulkner, Anne Tyler, Morrison.

**ENGL 442 Literature of the South (3)** Prerequisite: two English courses in literature or permission of department. Survey of fiction and poetry, especially the period 1900 to the present. Authors such as Faulkner, Welty, Glasgow, Wolfe, and Hurston.

**ENGL 443 Afro-American Literature (3)** Prerequisite: two English courses in literature or permission of department. An examination of the literary expression of the black American in the United States, from its beginning to the present.

**ENGL 444 Feminist Critical Theory (3)** Prerequisite: ENGL250 or WMST200 or WMST250. Also offered as WMST444. Credit will be granted for only one of the following: ENGL444 or WMST444. Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity.

**ENGL 445 Modern British and American Poetry (3)** Prerequisite: two English courses in literature or permission of department. The formation of Modernism in British and American poetry before 1930. Such poets as Yeats, Pound, H.D., Eliot, Langston Hughes, Moore, Stevens, and Williams.

**ENGL 446 Post-Modern British and American Poetry (3)** Prerequisite: two English courses in literature or permission of department. British and American poets from the 1930s to the present. Such poets as Auden, Williams, Plath, Brooks, Lowell, Wolcott, Ted Hughes, Bishop, Larkin, Jarrell, and Berryman.

**ENGL 447 Satire (3)** Prerequisite: two English courses in literature or permission of department. An introduction to English and American satire from Chaucer to the present.

**ENGL 448 Literature by Women of Color (3)** Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as WMST448. Credit will be granted for only one of the following: ENGL448 or WMST448. Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.

**ENGL 449 Playwriting (3)** Practice in writing one-act plays. Script development, production choices.

**ENGL 450 Renaissance Drama I (3)** Prerequisite: two English courses in literature or permission of department. Drama of the sixteenth century, from Sir Thomas More's circle through Lyly, Greene, Marlowe, and their successors. Interludes, school drama, comedy and tragedy, professional theater. Influences of humanism, Protestantism, politics, and cultural change.

**ENGL 451 Renaissance Drama II (3)** Prerequisite: two English courses in literature or permission of department. Drama in early decades of the seventeenth century. Playwrights include Jonson, Middleton, Marston, Webster, Beaumont and Fletcher. Tragedy, city comedy, tragicomedy, satire, masque. Pre-Civil War theatrical, political, and religious contexts.

**ENGL 452 English Drama From 1660 to 1800 (3)** Prerequisite: two English courses in literature or permission of department. Restoration and eighteenth-century drama, with special attention to theater history, cultural influences, concepts of tragedy, comedy, farce, parody, and burlesque, as well as dramatic and verbal wit.

**ENGL 453 Literary Theory (3)** Prerequisite: two literature courses. An in-depth study of literary and critical theory.

**ENGL 454 Modern Drama (3)** Prerequisite: two English courses in literature or permission of department. The roots of European Modernism and its manifestation in the drama of the twentieth century. Such playwrights as Beckett, Churchill, Stoppard, Wilde, Chekhov, Ibsen, Brecht, O'Neill, Sartre, Anouilh, Williams, and Shaw.

**ENGL 455 The Eighteenth-Century English Novel (3)** Prerequisite: two English courses in literature or permission of department. The origins and development of the British novel, from the late seventeenth century until the beginning of the nineteenth. Questions about what novels were, who wrote them, and who read them. Authors such as Behn, Defoe, Richardson, Fielding, Sterne, Smollett, Burney, Radcliffe, and Austen.

**ENGL 456 The Nineteenth-Century English Novel (3)** Prerequisite: two English courses in literature or permission of department. Surveys major novels of the period. Attention to narrative form and realism; representations of gender and class; social contexts for reading, writing and publishing. Authors such as Austen, Bronte, Dickens, George Eliot, Trollope.

**ENGL 457 The Modern Novel (3)** Prerequisite: two English courses in literature or permission of department. Modernism in the novel of the twentieth century. Such writers as Joyce, Lawrence, Murdoch, James, Forster, Faulkner, Hemingway, Fitzgerald, Ellison, Welty, Nabokov and Malamud.

**ENGL 458 Literature by Women after 1800 (3)** Prerequisite: two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as WMST458. Credit will be granted for only one of the following: ENGL458 or WMST458. Selected writings by women after 1800.

**ENGL 459 Selected Topics in Sexuality and Literature (3)** Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. Repeatable to 9 credits if content differs. Detailed study of sexuality as an aspect of literary and cultural expression.

**ENGL 461 Folk Narrative (3)** Personal history narrative; studies in legend, tale and myth.

**ENGL 462 Folksong and Ballad (3)** A cross-section of American folk and popular songs in their cultural contexts; artists from Bill Monroe to Robert Johnson.

**ENGL 463 American Folklore (3)** An examination of American folklore in terms of history and regional folk cultures. Exploration of collections of folklore from various areas to reveal the difference in regional and ethnic groups as witnessed in their oral and literary traditions.

**ENGL 464 African-American Folklore and Culture (3)** The culture of African Americans in terms of United States history (antebellum to the present) and social changes (rural to urban). Exploration of aspects of African-American culture and history via oral and literary traditions and life histories.

**ENGL 465 Theories of Sexuality and Literature (3)** Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. An in-depth study of the ways in which sexuality and sexual difference create or confound the conditions of meaning in the production of literary texts. Attention to psychoanalysis, history of sexuality, feminist theory, and other accounts of sexual identity.

**ENGL 466 Arthurian Legend (3)** Prerequisite: two English courses in literature or permission of department. Development of Arthurian legend in English and continental literature from Middle Ages to twentieth century. All readings in modern English.

**ENGL 467 Computer and Text (3)** Prerequisite: One English course in literature or permission of department. Examines electronic literature and other aspects of digital textuality. Topics may include interactive fiction, hypertext, image and sound works, literary games and simulations. Emphasis on critical and theoretical approaches rather than design or programming.

**ENGL 468 American Film Directors (3-9)** Prerequisite: one college-level film course. Repeatable to 9 credits if content differs. A study of two or more American filmmakers in an analytic cultural context.

**ENGL 469 Honors Seminar: Alternative Traditions (4-5)** Prerequisite: permission of Director of English Honors. Repeatable to 9 credits if content differs. Yearlong seminar focusing on a selected literary, cultural, or social topic that features texts and/or critical perspectives outside the traditional canon.

**ENGL 470 African-American Literature: The Beginning to 1910 (3)** Prerequisite: two English courses in literature or permission of department. Beginnings of African-American literature including origins of literary expression in folk tales, songs, and spirituals; slave narratives; pamphlets, essays and oratory; and the emergence of poetry and fiction. Emphasis is on interaction between literary forms and the salient political issues of the day.

**ENGL 471 African-American Literature: 1910-1945 (3)** Prerequisite: two English courses in literature or permission of department. Emergence of modernism in African-American writing including debates over the definition of unique African-American aesthetics, with emphasis on conditions surrounding the production of African-American literatures.

**ENGL 472 African-American Literature: 1945 to Present (3)** Prerequisite: two English courses in literature or permission of department. Transformation of African-American literatures into modern and postmodern forms. Influenced by World War II and the Civil Rights and Black Power movements, this literature is characterized by conscious attempts to reconnect literary and folk forms, the emergence of women writers, and highly experimental fiction.

## Approved Courses 203

**ENGL 475 Postmodern Literature (3)** Prerequisite: two lower level English classes, one in literature. Sophomore standing. The origins and ongoing development of postmodern literature. Aspects of the “postmodern condition,” such as the collapse of identity, the erasure of cultural and aesthetic boundaries, and the dissolution of life into textuality. The novel and other genres and media.

**ENGL 477 Studies in Mythmaking (3)** Prerequisite: two literature courses. Major themes, figures, and configurations of northern European mythology, examining the value of the mythic mode of thought in a scientific era.

**ENGL 478 Selected Topics in English and American Literature before 1800 (1-3)** Prerequisite: two English courses in literature or permission of department. Repeatable if content differs.

**ENGL 479 Selected Topics in English and American Literature after 1800 (3)** Prerequisite: two English courses in literature or permission of department. Repeatable if content differs.

**ENGL 482 History of the English Language (3)** Prerequisite: ENGL280 or LING200 or permission of department. Origin and development of the English language.

**ENGL 483 American English (3)** Prerequisite: ENGL280 or LING200 or permission of department. Origins and development of the various dialects of English spoken in the United States.

**ENGL 484 Advanced English Grammar (3)** Credit will be granted for only one of the following: ENGL484 or LING402. Advanced study of grammatical description.

**ENGL 486 Introduction to Old English (3)** Prerequisite: two English courses in literature or permission of department. Grammar, syntax, and phonology of Old English. Works read in the original language. Poetry may include “Battle of Maldon,” “Dream of the Rood,” “Wanderer,” “Seafarer,” riddles; prose of Bede, Wulfstan, Aelfric, and other writers of Anglo-Saxon period in England.

**ENGL 487 Foundations of Rhetoric (3)** Credit will be granted for only one of the following: ENGL487 or COMM401. Principles and approaches to the theory, criticism, and historical understanding of rhetorical discourse.

**ENGL 488 Topics in Advanced Writing (3)** Repeatable to 9 credits if content differs. Different genres of technical and professional writing including proposal writing, computer documentation, technical report writing, instruction manuals, etc. Students will analyze models of a genre, produce their own versions, test, edit and revise them.

**ENGL 489 Special Topics in English Language (3)** Repeatable to 9 credits if content differs. Current topics in language, such as linguistics, history of rhetoric, and composition studies.

**ENGL 493 Advanced Expository Writing (3)** Prerequisite: satisfactory completion of professional writing requirement. Writing processes and documents most necessary for professional writers.

**ENGL 494 Editing and Document Design (3)** Prerequisite: ENGL391, ENGL393 or equivalent. Principles of general editing for clarity, precision and correctness. Applications of the conventions of grammar, spelling, punctuation and usage, and organization for logic and accuracy. Working knowledge of the professional vocabulary of editing applied throughout the course.

**ENGL 495 Independent Study in Honors (1-3)** Prerequisites: Candidacy for honors in English and ENGL370 and ENGL373. For ENGL majors only. Completion and presentation of the senior honors project.

**ENGL 498 Advanced Fiction Workshop (3)** Prerequisite: ENGL396 or permission of department. Repeatable to 9 credits if content differs. Formerly ENGL 496. Practice in the craft of writing fiction, with emphasis on the revision process. Students encouraged to experiment with a variety of subjects, voices, and forms. Selected readings, frequent writing exercises, workshop format.

**ENGL 499 Advanced Poetry Workshop (3)** Prerequisite: ENGL397 or permission of department. Repeatable to 9 credits if content differs. Formerly ENGL 497. Practice in the craft of writing poetry, with emphasis on the revision process. Students encouraged to experiment with a variety of subjects, forms, and literary conventions. Selected readings, frequent writing exercises, workshop format.

### ENMA – Engineering, Materials

**ENMA 181 Introduction to Nanotechnology (1)** Freshman standing. Seminar introducing nanotechnology and the conceptual and analytical challenges for developing future nanomaterials. Class activities and guest lectures cover the role of nanomaterials in materials science and engineering.

**ENMA 310 Materials Laboratory I: Structural Characterization (3)** One hour of lecture and six hours of laboratory per week. Prerequisite: ENES230. Corequisite: ENMA460. Junior standing. Characterization of the structure of materials including both single crystal and polycrystalline materials. Laboratories will include x-ray and electron diffraction and microscopy.

**ENMA 311 Materials Laboratory II: Electromagnetic Properties (3)** One hour of lecture and six hours of laboratory per week. Prerequisites: ENMA310 and ENMA460. Junior standing. Characterization of the electromagnetic properties of materials. Laboratories will include measurements of electrical and transport properties, index of refraction, and magnetic properties.

**ENMA 362 Mechanical Properties (4)** Prerequisite: ENES230. Junior standing or permission of department. Fundamentals of mechanical behavior in materials. Elastic behavior, dislocations, strengthening, high temperature deformation, deformation of noncrystalline materials, tensile fracture and fatigue.

**ENMA 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student’s internship sponsor. Junior standing.

**ENMA 420 Intermediate Ceramics (3)** Prerequisites: ENES230, ENMA470, and ENMA471 or permission of department. To introduce basic concepts such as crystal chemistry, defect chemistry and ternary phase equilibria which can also be used to illustrate the various types of advanced ceramics (superconductors; superionic conductors; dielectrics including ferroelectrics; optical materials; high temperature structural materials; etc.) and allow an understanding of their behaviors.

**ENMA 421 Design of Composites (3)** Prerequisite: permission of department. Credit will be granted for only one of the following: ENMA421 or ENMA489A. Formerly ENMA 489A. Fundamentals of design, processing and selection composite materials for structural applications will be covered. The topics include a review of all classes of materials, an in-depth analysis of micro and macro mechanical behavior including interactions at the two-phase interfaces, modeling of composite morphologies for optimal microstructures, material aspects, cost considerations, processing methods including consideration of chemical reactions and stability of the interfaces, and materials selection considerations.

**ENMA 422 Radiation Effects of Materials (3)** Prerequisite: ENNU215, ENNU310, or ENES230; or permission of department. Credit will be granted for only one of the following: ENMA422 or ENMA489E. Formerly ENMA 489E. Ionizing radiation, radiation dosimetry and sensors, radiation processing, radiation effects on: polymers, metals, semiconductors, liquids, and gases. Radiation in advanced manufacturing, radiation-physical technology.

**ENMA 423 Manufacturing with Polymers (3)** Prerequisite: ENES230 or permission of department. Credit will be granted for only one of the following: ENMA423 and ENMA489R. Formerly ENMA 489R. Study of the process of engineering design and development of polymer formulations. Knowledge of commodity polymers and their physical properties, ability to design an extrusion process, develop the economics of a polymer manufacturing process, develop a working knowledge of characterization techniques for determination of physical and mechanical properties of polymers.

**ENMA 425 Introduction to Biomaterials (3)** Prerequisite: permission of department. Recommended: ENES230. Credit will be granted for only one of the following: ENMA489W or ENMA425. Formerly ENMA 489W. Examination of materials used in humans and other biological systems in terms of the relationships between structure, fundamental properties and functional behavior. Replacement materials such as implants, assistive devices such as insulin pumps and pacemakers, drug delivery systems, biosensors, engineered materials such as artificial skin and bone growth scaffolds, and biocompatibility will be covered.

**ENMA 460 Physics of Solid Materials (3)** Prerequisites: MATH241 and (PHYS270 and 271 {Formerly PHYS263}). Junior standing. For ENMA majors only. Also offered as PHYS431. Credit will be granted for only one of the following: ENMA460 or PHYS431. Classes of materials; introduction to basic ideal and real materials’ behavior including mechanical, electrical, thermal, magnetic and optical responses of materials; importance of microstructure in behavior. One application of each property will be discussed in detail.

**ENMA 461 Thermodynamics of Materials (3)** Prerequisite: ENES230. Junior standing. Thermodynamic aspects of materials; basic concepts and their application in design and processing of materials and systems. Topics include: energy, entropy, adiabatic and isothermal processes, internal and free energy, heat capacity, phase equilibria and surfaces and interfaces.

**ENMA 463 Macroprocessing of Materials (3)** Prerequisite: ENES230. Junior standing. Processing of modern, bulk engineering materials. Raw materials, forming, firing, finishing and joining. More emphasis on metals and ceramics than polymers.

**ENMA 464 Environmental Effects on Engineering Materials (3)** Prerequisite: ENES230 or permission of both department and instructor. Introduction to the phenomena associated with the resistance of materials to damage under severe environmental conditions. Oxidation, corrosion, stress corrosion, corrosion fatigue and radiation damage are examined from the point of view of mechanism and influence on the properties of materials. Methods of corrosion protection and criteria for selection of materials for use in radiation environments.

**ENMA 465 Microprocessing Materials (3)** Prerequisite: ENES230. Also offered as ENMA489B. Credit will be granted for only one of the following: ENMA363, ENMA489B, or ENMA465. Formerly ENMA 363. Micro and nanoscale processing of materials. Emphasis on thin film processing for advanced technologies.

**ENMA 470 Structure and Properties of Engineering Materials (3)** A comprehensive survey of the atomic and electronic structure of solids with emphasis on the relationship of structure to the physical and mechanical properties.

**ENMA 471 Kinetics, Diffusion and Phase Transformations (3)** Pre- or corequisite: ENMA461. Junior standing or permission of department. Fundamentals of diffusion, the kinetics of reactions including nucleation and growth and phase transformations in materials.

**ENMA 472 Technology and Design of Engineering Materials (3)** Prerequisite: ENES230. Relationship between properties of solids and their engineering applications. Criteria for the choice of materials for electronic, mechanical and chemical properties. Particular emphasis on the relationships between the structure of solids and their potential engineering applications.

**ENMA 481 Introduction to Electronic and Optical Materials (3)** Prerequisite: ENES230 or equivalent. Electronic, optical and magnetic properties of materials. Emphasis on materials for advanced optoelectronic and magnetic devices and the relationship between properties and the processing/fabrication conditions.

**ENMA 489 Selected Topics in Engineering Materials (3)** Prerequisite: permission of department. Repeatable to 12 credits if content differs. To introduce basic concepts such as crystal chemistry, defect chemistry and ternary phase equilibria which can also be used to illustrate the various types of advanced ceramics (superconductors; superionic conductors; dielectrics including ferroelectrics; optical materials; high temperature structural materials; etc.) and allow an understanding of their behaviors.

**ENMA 490 Materials Design (3)** One hour of lecture and six hours of laboratory per week. Senior standing. Capstone design course. Students work in teams on projects evaluating a society or industry based materials problem and then design and evaluate a strategy to minimize or eliminate the problem; includes written and oral presentations.

**ENMA 495 Polymeric Engineering Materials I (3)** Prerequisite: ENES230. Also offered as ENCH490. Credit will be granted for only one of the following: ENCH490 or ENMA495. Study of polymeric engineering materials and the relationship to structural type. Elasticity, viscoelasticity, anelasticity and plasticity of single and multiphase materials. Emphasis is on polymetric materials.

**ENMA 496 Processing and Engineering of Polymers (3)** Prerequisite: ENMA495. Also offered as ENCH496. Credit will be granted for only one of the following: ENCH496 or ENMA496. Processing and engineering techniques for the conversion of polymeric materials into products are discussed. Processes considered include forming, bonding and modification operations. The effect of processing on the structure and properties of polymeric materials is emphasized.

**ENMA 499 Senior Laboratory Project (1-3)** Senior standing. Students work with a faculty member on an individual laboratory project in one or more of the areas of engineering materials. Students will design and carry out experiments, interpret data and prepare a comprehensive laboratory report.

### ENME – Engineering, Mechanical

**ENME 201 Careers in Mechanical Engineering (1)** The Mechanical Engineering Curriculum, Career Paths. Research areas in the Mechanical Engineering Department. The Mechanical Engineering Profession.



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**ENME 232 Thermodynamics (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: PHYS260 and PHYS261 (Formerly: PHYS262). Introduction to thermodynamics. Thermodynamic properties of matter. First and second laws of thermodynamics, cycles, reactions, and mixtures.

**ENME 271 Introduction to Matlab (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES221. Develop the skills to generate readable, compact and verifiably correct MATLAB scripts and functions to obtain numerical solutions to a wide range of engineering models and to display the results with fully annotated graphics. Learn structured programming.

**ENME 320 Thermodynamics (3)** Prerequisites: MATH141; and {PHYS260 and PHYS261 (Formerly: PHYS262)}. The properties, characteristics and fundamental equations of gases and vapors. Application of the first and second laws of thermodynamics in the analysis of basic heat engines, air compression vapor cycles. Flow and non-flow processes for gases and vapors.

**ENME 331 Fluid Mechanics (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: ENME232 and ENES221. Principles of fluid mechanics. Mass, momentum and energy conservation. Hydrostatics. Control volume analysis. Internal and external flow. Boundary layers. Modern measurement techniques. Computer analysis. Laboratory experiments.

**ENME 332 Transfer Processes (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME331. The principles of heat transfer. Conduction in solids. Convection. Radiation. Modern measurement techniques. Computer analysis.

**ENME 350 Electronics and Instrumentation I (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: PHYS270 and 271 {Formerly PHYS263}. Credit will be granted for only one of the following: ENME252 or ENME350. Formerly ENME 252. Modern instrumentation. Basic circuit design, standard microelectronic circuits. Digital data acquisition and control. Signal conditioning. Instrumentation interfacing. Designing and testing of analog circuits. Laboratory experiments.

**ENME 351 Electronics and Instrumentation II (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: ENME350 and (PHY 270 and 271 {Formerly PHYS263}). Continuation of ENME 350. Modern instrumentation. Basic circuit design, standard microelectronic circuits. Digital data acquisition and control. Signal conditioning. Instrumentation interfacing. Designing and testing of analog circuits. Laboratory experiments.

**ENME 361 Vibration, Controls and Optimization I (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: ENES220, ENES221, ENME271, and MATH246. For ENME majors only. Fundamentals of vibration, controls and optimization. Analysis and design in time, Laplace and frequency domains. Mathematical description of system response, system stability, control and optimization. Optimal design of mechanical systems.

**ENME 371 Product Engineering and Manufacturing (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES221, ENME392, or STAT400. For ENME majors only. Business aspects of engineering product development. Relationship of design and manufacturing. Product specification. Statistical process control. Design team development. The development process.

**ENME 382 Engineering Materials and Manufacturing Processes (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES220. Basic material structures and properties. Mechanical behavior of materials. Manufacturing processes theory. Materials processing. Quality assurance. Laboratory experiments.

**ENME 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**ENME 392 Statistical Methods for Product and Processes Development (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH241. Integrated statistical methodology for the improvement of products and processes in terms of performance, quality and cost. Designed experimentation. Statistical process control. Software application. Laboratory activities.

**ENME 398 Honors Research Project (1-3)**

**ENME 400 Machine Design (3)** Senior standing. Working stresses, stress concentration, stress analysis and repeated loadings. Design of machine elements. Kinematics of mechanisms.

**ENME 408 Selected Topics in Engineering Design (3)** Prerequisite: senior standing in mechanical engineering or permission of department. Repeatable to 6 credits if content differs. Creativity and innovation in design. Generalized performance analysis, reliability and optimization as applied to the design of components and engineering systems. Use of computers in design of multivariable systems.

**ENME 414 Computer-Aided Design (3)** Prerequisite: MATH241 or equivalent. Introduction to computer graphics. Plotting and drawing with computer software. Principles of writing interactive software. The applications of computer graphics in computer-aided design. Computer-aided design project.

**ENME 423 Building Cooling Heating and Power Systems (3)** Prerequisite: ENME232 and ENME332. Introduction to the evaluation of cooling, heating and power requirements of buildings. Description, design and evaluation of state-of-the-art and emerging integrated cooling, heating and power systems (engines, micro-turbines, absorption and desiccant systems) as they are applied to buildings. The course uses the Chesapeake building facility and the campus cogeneration facility as real-life demonstration examples.

**ENME 462 Vibrations, Controls, and Optimization II (3)** Two hours of lecture and two hours of discussion/recitation per week. Prerequisites: ENME351 and ENME361. Formerly ENME 362. Continuation of ENME 361. Fundamentals of vibration, controls, and optimization. Analysis and design in time, Laplace and frequency domains. Mathematical descriptions of system response, system stability, control and optimization. Optimal design of mechanical systems.

**ENME 465 Introductory Fracture Mechanics (3)** Senior standing in engineering. An examination of the concepts of fracture in members with pre-existing flaws. Emphasis is primarily on the mechanics aspects with the development of the Griffith theory and the introduction of the stress intensity factor,  $K$ , associated with different types of cracks. Fracture phenomena are introduced together with critical values of the fracture toughness of materials. Testing procedures for characterizing materials together with applications of fracture mechanics to design.

**ENME 470 Finite Element Analysis (3)** Senior standing. Basic concepts of the theory of the finite element method. Applications in solid mechanics and heat transfer.

**ENME 472 Integrated Product and Process Development (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME371. Integration of product development with the development process. Design strategies. Product architecture. Design for manufacturing. Selection of materials. Design for assembly.

**ENME 473 Mechanical Design of Electronic Systems (3)** Prerequisites: ENME310; and ENME360; and ENME321. Design considerations in the packaging of electronic systems. Production of circuit boards and design of electronic assemblies. Vibration, shock, fatigue and thermal considerations.

**ENME 474 Design in Electronic Product Development (3)** Prerequisite: ENME473. Merges technology, analysis, and design concepts into a single focused activity that results in the completed design of an electronic product. A set of product requirements are obtained from an industry partner, the students create a specification for the product, iterate the specification with the industry partner, then design and analyze the product. Students will get hands-on experience using real design implementation tools for requirements capture, tradeoff analysis, scheduling, physical design and verification. Issues associated with transferring of the design to manufacturing and selection of manufacturing facilities will also be addressed.

**ENME 476 Microelectromechanical Systems (MEMS) I (3)** Three hours of lecture and one hour of laboratory per week. Senior standing. Credit will be granted for only one of the following: ENME476 or ENME489F. Formerly ENME 489F. Fundamentals of microelectromechanical systems (MEMS). Introduction to transducers and markets. MEMS fabrication processes and materials, including bulk micromachining, wet etching, dry etching, surface micromachining, sacrificial layers, film deposition, bonding, and non-traditional micromachining. Introduction to the relevant solid state physics, including crystal lattices, band structure, semiconductors, and doping. The laboratory covers safety, photolithography, profilometry, wet etching.

**ENME 477 Microelectromechanical Systems (MEMS) II (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME476. Fabrication of devices designed in MEMS I, including everything from mask printing through training on state-of-the-art fabrication equipment through device testing. In-depth understanding of MEMS devices and technologies, such as mechanical and electromagnetic transducers, microfluidics, and chemical sensors.

**ENME 488 Special Problems (3)** Prerequisite: permission of department. Advanced problems in mechanical engineering with special emphasis on mathematical and experimental methods.

**ENME 489 Special Topics in Mechanical Engineering (3)** Prerequisite: permission of department. Repeatable to 6 credits with permission of advisor. Selected topics of current importance in mechanical engineering.

**ENME 490 Mechanical Engineering Honors Seminar (1)** Prerequisite: Permission of the Mechanical Engineering Honors Program. For ENME majors only. New trends and technologies in Mechanical Engineering.

### ENNU – Engineering, Nuclear

**ENNU 215 Introduction to Nuclear Technology (3)** Prerequisites: MATH141; and PHYS161. Engineering problems of the nuclear energy complex, including basic theory, use of computers, nuclear reactor design and isotopic and chemical separations.

**ENNU 310 Environmental Aspects of Nuclear Engineering (3)** Prerequisites: (MATH241 or MATH246; and {PHYS270 and 271 (Formerly PHYS263)}) or PBD. Evaluation of environmental and safety aspects of nuclear power reactors. Calculations of radioactive decay, activation, shielding, radiation monitoring. Biological effects of radiation, waste handling, siting, plant design and operations, as related to environment safety and licensing regulations.

**ENNU 320 Nuclear Reactor Operation (3)** Two hours of lecture and two hours of laboratory per week. Introduction to nuclear reactor operations. Outline of reactor theory. Nature and monitoring techniques of ionizing radiation, radiation safety. Reactor instrument response. Operation of the University of Maryland nuclear reactor.

ENNU 386 Experiential Learning (3-6) Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**ENNU 398 Honors Research Project (1-3)**

**ENNU 440 Nuclear Technology Laboratory (3)** One hour of lecture and four hours of laboratory per week. Prerequisites: MATH240; and PHYS263. Techniques of detecting and making measurements of nuclear or high energy radiation. Radiation safety experiments. Both a subcritical reactor and the swimming pool critical reactor are sources of radiation.

**ENNU 441 Nuclear Engineering Laboratory I (1)** One hour of lecture and two hours of laboratory per week. Corequisite: ENNU450. Methods of radiation detection. Principles and uses of radiation detectors and electronics. Geiger counting and statistical analysis. Fundamentals of gamma spectroscopy.

**ENNU 442 Nuclear Engineering Laboratory II (1)** One hour of lecture and two hours of laboratory per week. Prerequisite: ENNU441. Corequisite: ENNU455. Principles of radiation detectors and electronics. Use of Maryland University Training Reactor for criticality experiments and activation analysis. Fundamental heat transfer experiments. Data acquisition and analysis.

**ENNU 443 Nuclear Engineering Laboratory III (1)** One hour of lecture and two hours of laboratory per week. Prerequisites: ENNU441 and ENNU442. Heat transfer, fluid flow, boiling experiments. Applications to reactor systems and components. Observation of thermalhydraulic phenomena. Gamma shielding analysis.

**ENNU 450 Nuclear Reactor Engineering I (3)** Prerequisites: (MATH246 and {PHYS270 and 271 (Formerly PHYS263)}) or permission of both department and instructor. Elementary nuclear physics, reactor theory, and reactor energy transfer. Steady-state and time-dependent neutron distributions in space and energy. Conduction and convective heat transfer in nuclear reactor systems.

**ENNU 455 Nuclear Reactor Engineering II (3)** Prerequisite: ENNU450. General plant design considerations including radiation hazards and health physics, shielding design, nuclear power economics, radiation effects on reactor materials, and various types of nuclear reactor systems.

**ENNU 465 Nuclear Reactor Systems Analysis (3)** Prerequisites: (MATH246; and {PHY 270 and 271 (Formerly PHY 263)}); and ENN 455) or permission of both department and instructor. Power reactor (BWR,PWR,HTGR) system design and analysis. System specifications and modes of operation. Plant documentation (PSAR,FSAR, etc.). Piping and instrumentation drawings. Theory and application of pump and piping calculations. Steam power plant cycles and calculations. Steam plant equipment (turbines, heaters, condensers, etc.) analysis.

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**ENNU 468 Research (2-3)** Prerequisite: permission of both department and instructor. Repeatable to 6 credits. Investigation of a research project under the direction of one of the staff members. Comprehensive reports are required.

**ENNU 480 Reactor Core Design (3)** Prerequisite: ENNU450 or permission of both department and instructor. Design of nuclear reactor cores based on a sequence of standard computer codes. Thermal and epithermal cross sections, multigroup diffusion theory in one and two dimensions and fine structure flux calculations using transport theory.

**ENNU 485 Nuclear Reactor Thermalhydraulics (3)** Prerequisites: ENNU465, ENME321 and ENME342 or equivalent. Thermalhydraulic response of nuclear power plant systems. Accident analysis and impact of emergency systems. Boiling phenomena, nucleate boiling, critical heat flux, condensation. Containment thermalhydraulic analysis. Overview of principal thermalhydraulic computer codes.

**ENNU 489 Special Topics in Nuclear Engineering (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics of current importance in nuclear engineering.

**ENNU 490 Nuclear Fuel and Power Management (3)** Prerequisites: {ENNU460; and ENNU480} or permission of both department and instructor. Physics and economics of the nuclear fuel cycle utilizing existing design codes. Mining, conversion, enrichment, fabrication, reprocessing processes. Effects of plutonium recycle, in-core shuffling, fuel mechanical design and power peaking on fuel cycle costs.

**ENNU 495 Nuclear Engineering Systems Design (3)** Two hours of lecture and three hours of laboratory per week. Prerequisites: ENNU455 and ENNU480 and Senior standing in nuclear engineering. Senior capstone design course. Major design experience that emphasizes putting student's engineering knowledge into practice. Design topic is one of current interest in nuclear engineering. Design methodology, creativity, feasibility, reliability, and economic analyses of the overall design required. Students work in teams, and present oral and written design reports.

### ENPM – Engineering, Professional Masters

**ENPM 489 Special Topics in Engineering (1-6)** Repeatable to 12 credits if content differs. Special topics selected by the faculty for students in the Professional Master of Engineering Program.

### ENRE – Reliability Engineering

**ENRE 445 Applied Reliability Engineering I (3)** Prerequisite: MATH246, PHYS270 and 271 (Formerly: PHYS263), or permission of instructor. Credit will be granted for only one of the following: ENRE445 or ENRE489C. Formerly ENRE 489C. Topics covered include: fundamental understanding of how things fail, probabilistic models to represent failure phenomena, life-models for non-repairable items, reliability data collection and analysis and applicable quality techniques. Distribution functions such as the normal, Weibull, exponential, binomial, and gamma are explored.

**ENRE 446 Applied Reliability Engineering II (3)** Prerequisite: MATH246, PHYS270 and 271 {Formerly: PHYS263}, or permission of instructor. Credit will be granted for only one of the following: ENRE446 or ENRE489D. Formerly ENRE 489D. Topics covered include: System modeling and analysis, designing for reliability, reliability testing, reliability in manufacturing, and reliability management. Fault tree analysis, RBD, and cut sets are covered along with sneak circuits, time-on-test plots and acceptance testing.

**ENRE 447 System Safety Engineering (3)** Prerequisite: MATH246 and (PHYS270 and 271 {Formerly: PHYS263}) or permission of department. Credit will be granted for only one of the following: ENRE447 or ENRE467. Formerly ENRE 467. Role of system safety, the language of system safety, and programs for achieving safety, such as the problem solving process, safety criteria, safety descriptors, checklist-timeliness elements, safety training, hazard analysis and uncertainty in safety measurements. Time-phased indicators, hazard nomenclature, hazard mode and effect analysis, hazard classification, hazard probability, survival rate, distributions applied to human performance.

**ENRE 452 Software Testing (3)** Prerequisite: CMSC114 or CMSC214; and CMSC/MATH475 or MATH461; or permission of department. Topics covered include: Methods for unit testing, and system testing; Structural testing (flowgraphs and data-flows); Functional testing (behavioral models and textual descriptions); Deterministic and statistical generation of inputs; testing of object-oriented programs.

**ENRE 489 Special Topics in Reliability Engineering (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics of current importance in reliability engineering.

### ENSP – Environmental Science and Policy

**ENSP 101 Introduction to Environmental Science (3)** Three hours of lecture and one hour of discussion/recitation per week. Not open to students who have completed PBIO235 or BSCI205. First part of a two-semester course sequence that introduces students to the topics studied and methods employed in modern environmental science studies. Emphasis will be on critical evaluation of information available on such topics as atmospheric chemistry, radiation transfer, water pollution and overuse of groundwater, natural resources and biodiversity.

**ENSP 102 Introduction to Environmental Policy (3)** Three hours of lecture and one hour of discussion/recitation per week. Second of two courses that introduce students to the topics studied and methods employed in environmental science and policy. Emphasis on the process of formulating, implementing, and evaluating policy responses to environmental problems, with particular attention to policy controversies related to scientific uncertainty, risk assessment, the valuation of nature, and distributional equity. May be taken before or after ENSP101.

**ENSP 210 Environment-Related Careers: Academic and Career Exploration (1)** Not open to students who have completed more than 60 credits. Credit will be granted for only one of the following: CPSP118E or ENSP210. Explore environment-related majors and careers. Begin academic planning and professional development activities. A course for freshmen and sophomore.

**ENSP 386 Internship (3-6)** Prerequisite: internship proposal approved by the specialty advisor, the director of ENSP and the student's internship sponsor.

**ENSP 399 Special Topics in Environmental Science and Policy (1-3)** Restricted to ENSP majors or permission of department. Repeatable to 12 credits if content differs. A substantive and specialized examination of contemporary issues in environmental science or policy.

**ENSP 400 Capstone in Environmental Science and Policy (3)** Prerequisite: Senior Standing or Permission of the Director of ENSP; ENSP101 and 102. For ENSP majors only. Integration of physical, biological, and social sciences with applications to environmental science and policy. Problem-solving and multi-disciplinary case study evaluations pertinent to contemporary and future issues related to the environment.

**ENSP 499 Honors Thesis Research (1-6)** Prerequisite: Admission to ENSP Honors and permission of department. Repeatable to 6 credits. Individual research, thesis, and oral defense. The research project will be conducted under the supervision of a faculty member.

### FMST – Family Studies

**FMST 105 Individuals in Families (3)** Personal growth and development within the family context. Exploration of self-awareness, sex-role image, life transitions, and interpersonal and family relations.

**FMST 260 Couple Relationships (3)** Couple relationships and their alternatives in contemporary dating, courtship and marriage.

**FMST 290 Family Economics (3)** Application of economic methodology to study families under various economic situations. Examination of how decisions about marriage, divorce, fertility, consumption and time use are influenced by labor/housing markets, tax structure, social welfare benefits and other economic considerations.

**FMST 298 Special Topics in Family Studies (1-3)** Repeatable to 12 credits if content differs. Topics of special interest under the general guidance of the Department of Family Studies.

**FMST 302 Research Methods in Family Studies (3)** Prerequisite: introductory statistics course. For FMST majors only. Introduction to the methods of the social and behavioral sciences employed in family science. The role of theory, the development of hypotheses, measurement, design, and data analysis.

**FMST 330 Family Theories and Patterns (3)** Junior standing. Theory and research on the family, including a cross-cultural analysis of family patterns.

**FMST 332 Children in Families (3)** Prerequisite: FMST105 or PSYC100. A family life education approach to the study of children and families. Emphasis on the interaction of children with parents, siblings, extended kin, and the community.

**FMST 341 Personal and Family Finance (3)** Individual and family financial strategies with emphasis on financial planning, savings, investments, insurance, income taxes, housing, and use of credit. Planning, analyzing, and controlling financial resources to resolve personal/family financial problems and to attain financial security.

**FMST 381 Poverty, Affluence, and Families (3)** Prerequisite: SOCY100 or SOCY105. Social, political, cultural and economic factors influencing income and wealth in American families.

**FMST 383 Delivery of Human Services to Families (3)** Prerequisite: FMST330. Processes of service delivery with special emphasis upon relationships among managers, service providers and clients. The impact of human service systems on families.

**FMST 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**FMST 399 Independent Study (1-6)** Prerequisite: permission of department. Repeatable to 12 credits.

**FMST 430 Gender Issues in Families (3)** Prerequisite: SOCY100 or SOCY105 or PSYC100. Also offered as WMST430. Credit will be granted for only one of the following: FMST430 or WMST430. The development of historical, cultural, developmental, and psychosocial aspects of masculinity and femininity within the context of contemporary families and the implications for interpersonal relations.

**FMST 431 Family Crises and Intervention (3)** Prerequisite: PSYC100. Family crises such as divorce, disability, substance abuse, financial problems, intrafamilial abuse, and death. Theories and techniques for intervention and enhancement of family coping strategies.

**FMST 432 Intergenerational Aspects of Family Living (3)** Prerequisite: FMST332 (or a comparable development course). The historical, cultural, developmental, and psychosocial experiences of contemporary American generations. Interactions across generations within the family and the consequences for individual development. Cross-national comparisons.

**FMST 460 Violence in Families (3)** Prerequisite: PSYC100 or SOCY100 or SOCY105. Theories of child, spouse, and elder abuse in the family setting. Emphasis on historical, psychological, sociological and legal trends relating to physical, emotional, and sexual abuse. Introduction to methods for prevention and remediation.

**FMST 477 Internship and Analysis in Family Studies (3)** Prerequisites: FMST383, plus an additional six FMST credits and permission of department. For FMST majors only. Credit will be granted for only one of the following: FMST477 or FMST347. A supervised internship and a seminar requiring analysis. Opportunities to integrate theory and practice including 120 hours of contracted field experience. Summer or fall internship contracts due May 1; Spring contracts due December 1. See department for application procedures.

**FMST 480 Work and Family Issues and Programs (3)** The purpose, nature, organization and administration of work site, or employer-based, family support resources, including child and elder care referral and subsidies, parenting education, health and wellness programs, parental and sick child leaves, and flexible work scheduling.

**FMST 485 Introduction to Family Therapy (3)** Prerequisites: FMST330 or FMST370; or one psychology course at 300 or above level. The fundamental theoretical concepts and clinical procedures of marital and family therapy including premarital and divorce therapy issues.

**FMST 487 Legal Aspects of Family Problems (3)** Laws and legal procedures, with emphasis on adoption, marriage, divorce, annulment, and property rights, and how they affect family life.

**FMST 490 Family and Addiction (3)** Prerequisite: SOCY100 or SOCY105 or PSYC100 or permission of instructor. Theory, research, and clinical practice in the area of addictions and recovery as they relate to family processes.

**FMST 497 The Child and the Law (3)** Legislation and case law regarding children's legal rights with emphasis on the rights of children in the juvenile justice system, and rights to medical, educational, and other social services.

**FMST 498 Special Topics (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Special course topics in family studies.

### FOLA – Foreign Language

**FOLA 108 Elementary Foreign Languages I (3)** Repeatable if content differs. The first semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

**FOLA 109 Elementary Foreign Languages II (3)** Prerequisite: FOLA108 in the subject language or permission of department. Repeatable if content differs. The second semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

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**FOLA 118 Intermediate Foreign Languages I (3)** Prerequisite: FOLA109 in the subject language or permission of department. Repeatable if content differs. The third semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA108, FOLA109, FOLA118 and FOLA119 in a single language.

**FOLA 119 Intermediate Foreign Language II (3)** Prerequisite: FOLA118 in the subject language or permission of department. Repeatable if content differs. Developing intermediate language skills, in both grammar and vocabulary; enhancement of oral and writing abilities.

**FOLA 128 Introductory Middle Eastern Languages I (3)** Prerequisite: permission of department. Repeatable to 9 credits if content differs. An introduction to the three principal languages of the Islamic Middle East: Arabic, Persian, and Turkish. Only standard written form of the three languages is taught. May not be used to satisfy arts and humanities language requirement.

**FOLA 129 Introductory Middle Eastern Languages II (3)** Prerequisite: FOLA128 and permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA128. May not be used to satisfy arts and humanities language requirement.

**FOLA 138 Directed Study of a Foreign Language I (3)** Open only by permission of department to students of high motivation and proven language learning aptitude. Directed study of a modern foreign language with use of a self-instructional approach.

**FOLA 139 Directed Study of a Foreign Language II (3)** Prerequisite: FOLA138 in the same language or permission of department. A continuation of FOLA138.

**FOLA 148 Directed Study of a Foreign Language III (3)** Prerequisite: FOLA139 in the same language or permission of department. A continuation of FOLA139.

**FOLA 149 Directed Study of a Foreign Language IV (3)** Prerequisite: FOLA148 in the same language or permission of department. A continuation of FOLA148.

**FOLA 158 Directed Study of a Foreign Language (Intensive) I (6)** Open only by permission of department to students of very high motivation and proven language learning aptitude. Intensive directed study of a modern foreign language with use of a self-instructional approach. Equivalent to FOLA138 plus FOLA139.

**FOLA 159 Directed Study of a Foreign Language (Intensive) II (6)** Prerequisite: FOLA158 in the same language or permission of department. A continuation of FOLA158. Equivalent to FOLA148 plus FOLA149.

**FOLA 228 Intermediate Middle Eastern Languages I (3)** Prerequisite: FOLA129 and permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA129. May not be used to satisfy arts and humanities language requirement.

**FOLA 329 Advanced Middle Eastern Languages II (3)** Prerequisite: FOLA328 or permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA328. May not be used to satisfy arts and humanities language requirement.

**FOLA 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**FOLA 389 Foreign Civilization (3)** Repeatable to 6 credits if content differs. A survey of the cultural history, arts and letters, folklore and life-style of the speakers of a language not otherwise offered. All readings and instruction in English.

**FOLA 408 Foreign Language I (3)** Intensive study of a foreign language or related topic not available under one of the current foreign language departments or programs. May not be used to fulfill the arts and humanities language requirement.

**FOLA 409 Foreign Language II (3)** Prerequisite: FOLA408 in the same language or topic. A continuation of FOLA 408. May not be used to fulfill arts and humanities language requirement.

**FOLA 459 Foreign Literature in Translation (3)** Repeatable to 6 credits if content differs. Reading and discussion of selected authors, periods or genres of a foreign literature not otherwise offered. All readings and instruction in English.

### FREN – French

**FREN 101 Elementary French I (4)** Four classroom meetings per week. Not open to students with 2 or more years of high school level French or to native/fluent speakers of French. Introduction to basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

**FREN 102 Elementary French II (4)** Four classroom meetings per week. Prerequisite: FREN101 at UMCP or permission of department. Further work on basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

**FREN 103 Intensive Elementary French (4)** Four classroom meetings per week. Not open to students who have completed FREN101, FREN102, more than two years of high school French, or to fluent/native speakers of French. Credit will be granted for only one of the following: FREN102 or FREN103. Covers speaking, reading, writing, listening, and culture of French speaking world.

**FREN 201 Intermediate French (4)** Four classroom meetings per week. Prerequisite: FREN102. Not open to students who have completed four years (Level 4) of high school French or are native/fluent speakers of French. Credit will be granted for only one of the following: FREN201 or FREN203. Formerly FREN 203. Completion of work on basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing. Fulfills the Arts and Humanities Language Requirement.

**FREN 203 Intensive Intermediate French (4)** Prerequisite: FREN103 or equivalent. Credit will be granted for only one of the following: FREN201, FREN202 or FREN203. Formerly FREN 202. Covers speaking, reading, writing, listening, and culture of French-speaking world.

**FREN 204 French Grammar and Composition (3)** Prerequisite: FREN201 or FREN203. Open to students who have completed 4 years (Level 4) of high school French. Not open to native/fluent speakers of French. Intensive study of French grammar and composition.

**FREN 211 French Reading and Conversation (3)** Not open to native/fluent speakers of French. Prerequisite: FREN201 or FREN203. Practice in spoken French at intermediate level based on readings in a variety of genres. Written homework and exams.

**FREN 240 Masterworks of French Literature in Translation (3)** Major works of French literature from pre-revolutionary France to the present. Emphasis on the individual in a social context. In English.

**FREN 241 Women Writers of French Expression in Translation (3)** Also offered as WMST241. Credit will be granted for only one of the following: FREN241 or WMST241. Works and ideas of 20th century women writers of French in Canada, Africa, the Caribbean and France. Taught in English.

**FREN 242 Black Writers of French Expression in Translation (3)** An analysis of the works and ideas of 20th century black writers of French in Africa, the Caribbean and France. Taught in English.

**FREN 243 Masterpieces in French and Francophone Cinemas (3)** This course, taught in English, will present a large array of films directed by famous French directors (Jean Renoir, Robert Bresson, Jean-Luc Godard, Agnes Varda, etc..) and Francophone filmmakers (Arcand, Sembene) who were internationally known in their time and have had a considerable influence on today's filmmakers in the U.S. (Tarantino, Lynch, Lee, etc..) and abroad (Sissoko, Angelopoulos, VonTrier, ect..).

**FREN 420 Introduction to French Literature (3)** Not open to native/fluent speakers of French. Prerequisite: FREN204 or equivalent. Recommended: FREN211. Selected readings from various genres in French literature. Discussion and brief written reports in French.

**FREN 298 Aspects of French Civilization (3)** Two hours of lecture and one hour of discussion/recitation per week. Credit may not be applied to French major. Repeatable to 6 credits if content differs. Formerly FREN 370. Topic to be determined each semester. Historical or thematic approaches to French art, literature, and culture. Taught in English.

**FREN 301 Composition and Style (3)** Not open to native or fluent speakers of French. Prerequisite: FREN250 or equivalent. Grammatical analysis, translation, free and guided composition.

**FREN 302 Practicum in Translation I (3)** Prerequisite: FREN301 or equivalent. Problems and strategies of translation into both English and French. Journalistic and literary styles.

**FREN 303 Practicum in Translation II (3)** Prerequisite: FREN301 or equivalent. Recommended: FREN302. Further problems and strategies of translation into both English and French. Journalistic and literary styles.

**FREN 306 Commercial French I (3)** Prerequisite: FREN301 or equivalent. Introduction to commercial French including correspondence and business terminology. Emphasis on cross-cultural concepts needed for successful interaction within business settings. In French.

**FREN 311 Advanced Conversation: The History of France (3)** Not open to fluent/native speakers of French. Prerequisite: FREN250 or equivalent. Recommended: FREN211. Linguistic and thematic analysis and discussion of written and audiovisual texts on French history with attention paid to role of history in contemporary events. Some written assignments.

**FREN 312 France Today (3)** Not open to native/fluent speakers. Prerequisite: FREN301 or equivalent. Analysis and discussion of current events and institutions, primarily articles from French press.

**FREN 351 From Romanticism to the Age of Modernism and Beyond (3)** Prerequisite: FREN301 or equivalent. A survey of the chief authors and major movements of French literature from Pre-Romanticism to the present.

**FREN 352 From the Age of Epic and Romance to the Enlightenment (3)** Prerequisite: FREN301 or equivalent. A survey of the chief authors and major movements of French literature from the Middle Ages to the end of the 18th century.

**FREN 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**FREN 388 Language House Colloquium (1)** Prerequisite: Residence in Language House. Repeatable to 4 credits. The Language House Colloquium is a one-credit course for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.

**FREN 399 Directed Study in French (1-3)** Prerequisite: permission of department. Repeatable to 3 credits. Advanced undergraduates develop syllabus, reading list, and course requirements with interested faculty member. Designed for in-depth study of material not offered in regular courses or as expansion of course material. To be planned during semester preceding registration.

**FREN 400 Applied Linguistics (3)** The nature of applied linguistics and its contribution to the effective teaching of foreign languages. Comparative study of English and French, with emphasis upon points of divergence.

**FREN 401 Writing with Style (3)** Prerequisite: FREN301 or permission of department. Advanced composition and stylistic analysis.

**FREN 404 Issues in the French-Speaking World Today (3)** Prerequisite: FREN311 or FREN 312 or permission of department. A sociocultural and historical approach to relevant issues affecting contemporary French civilization. Press articles and television programs will be the basis for classroom cultural analysis and oral communication.

**FREN 406 Commercial French II (3)** Prerequisite: FREN306 or permission of department. Advanced study of commercial French language—terminology and style—leading to preparation for the Paris Chamber of Commerce Examination.

**FREN 407 History of the French Language (3)** Evolution of the French language from Latin to modern French.

**FREN 429 Studies in French Literature and Culture of the Renaissance (3)** Repeatable to 6 credits if content differs. Selected topics in French literature of the Renaissance.

**FREN 439 Studies in 17th Century French Literature and Culture (3)** Repeatable to 6 credits if content differs. Selected topics in seventeenth-century French literature.

**FREN 449 Studies in 18th Century French Literature and Culture (3)** Repeatable to 6 credits if content differs. Selected topics in eighteenth-century French literature.

**FREN 459 Studies in 19th Century French Literature and Culture (3)** Repeatable to 6 credits if content differs. Selected topics in nineteenth-century French literature.

**FREN 469 Studies in 20th Century French Literature and Culture (3)** Repeatable to 6 credits if content differs. Selected topics in twentieth-century French literature.

**FREN 471 The Construction of French Identity I: From the Origins to the Age of Versailles (3)** French life, customs, culture, traditions (800-1750).

**FREN 472 The Construction of French Identity II: From the Revolution to the Early Twentieth Century (3)** French life, customs, culture, traditions (1750 to the early twentieth century).

**FREN 473 The Construction of French Identity III: Cross-Cultural Approaches to the Study of Contemporary French Society (3)** Patterns of communication, mythology, and ideology in modern France, from the Third Republic to the present, through historical and cross-cultural approaches, with reference to the Francophone world.

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**FREN 474 Contemporary France: A Sociocritical Approach (3)** Recommended: FREN473. A sociocritical approach to understanding modern French society through the study of print and non-print media documents (autobiography, film, and paraliterature), with reference to the Francophone world.

**FREN 478 Themes and Movements of French Literature in Translation (3)** Studies treatments of thematic problems or literary or historical movements in French literature. Topic to be determined each semester. Taught in English.

**FREN 479 Masterworks of French Literature in Translation (3)** Treats the works of one or more major French writers. Topic to be determined each semester. Taught in English.

**FREN 480 French Cinema: A Cultural Approach (in Translation) (3)** Formerly FREN 475. A study of French culture, civilization, and literature through the medium of film. Taught in English.

**FREN 481 Femmes Fatales and the Representation of Violence in Literature, (3)** Opera and Film (in English) The problem of violence in art with respect to women and marginal populations. Taught in English.

**FREN 482 Gender and Ethnicity in Modern French Literature (3)** Literature by women writers of France and other French speaking areas with a focus on the relationship between gender, ethnicity and writing. Taught in English.

**FREN 489 Pro-Seminar in Themes or Movements of French Literature (3)** Repeatable to 6 credits if content differs.

**FREN 495 Honors Thesis Research (3)** Open only to students admitted to the departmental honors program. The writing of a paper under the direction of a professor in this department and an oral examination. Required to fulfill the departmental honors requirement.

**FREN 498 Special Topics in French Literature (3)** Repeatable to 6 credits if content differs.

**FREN 499 Special Topics in French Studies (3)** Repeatable to 6 credits if content differs. An aspect of French studies, the specific topic to be announced each time the course is offered.

### GEMS – Gemstone

**GEMS 100 Freshman Honors Colloquium: Introduction to Gemstone (1)** Freshman standing. Orienting new Gemstone students to the university and to the program through a variety of team building activities, resources, and skill exploration exercises. Students will also examine and discuss areas such as liberal education, diversity, service, arts, current events, academic integrity, and leadership style.

**GEMS 102 Research Topic Exploration (1)** Restricted to Gemstone students only. Under the guidance of staff and visiting speakers, students will develop research topics that they will pursue for the remainder of their participation in the Gemstone program, and form into interdisciplinary teams around these topics.

**GEMS 104 Topics in Science, Technology and Society (STS) (3)** Prerequisite: GEMS100. Corequisite: GEMS102 Restricted to Gemstone students only. Freshman standing. Credit will be granted for only one of the following: GEMS103, GEMS104 or HIST175G. Formerly HIST 175G. An examination of how cultural, economic, political and social forces shape scientific and technological systems and, conversely, how scientific and technological systems have affected the culture, economies, organization and politics of societies. Students in the course will form small teams to carry out semester-long research on socio/technical topics related to the course theme chosen for that specific semester.

**GEMS 202 Team Dynamics and Research Methodology (2)** One hour of lecture and one hour of discussion/recitation per week. Prerequisite: GEMS100, GEM 102 and GEM 104. Corequisite: GEM 296 For GEMSTONE participants only. Sophomore standing. This is designed to foster an understanding of the dynamics of team behavior and basic research methodology. This experiential course will teach skills applicable to Gemstone research and the writing of a team thesis. Upper classmen serve as section leaders and will act as peer mentors to the new teams and serve as an additional resource for them.

**GEMS 208 Special Topics in Leadership and Team Development (1-3)** Principles, methods and types of leadership and team development with an emphasis on group discussion and decision making. Reading, discussion and exploration of the basic team concept, communications for winning scenarios, goal setting, problem solving, conflict resolution and research methods.

**GEMS 296 Team Project Seminar I (1)** Prerequisite: GEMS100, GEMS102 and GEMS104. Corequisite: GEMS202. For Gemstone students with sophomore standing in a research team. This is the first of six seminars during which Gemstone students carry out multidisciplinary research under the general guidance of a faculty mentor. The teams develop their working relationship, start their literature search, define their research question, and set short & long term goals.

**GEMS 297 Team Project Seminar II (2-3)** Prerequisite: For Gemstone students with sophomore standing in a research team. This is the second of six seminars during which Gemstone students carry out interdisciplinary research under the general guidance of a faculty mentor. The team develops its website, prepares and presents its progress at the Gemstone Colloquia and presents the team project in the poster session.

**GEMS 308 Selected Topics (3)** For Gemstone students only. Sophomore standing. Gemstone winter course (study abroad) will allow individuals and research teams to focus on the three dimensions of transformation as related to traditional societies and technology; (a) changing patterns of social need and technology; (b) cultural antecedents and its transformative effects on traditions; and (c) social traditions that hinder and/or enhance technological innovations.

**GEMS 396 Team Project Seminar III (2)** Prerequisite: GEMS297. For Gemstone students with junior standing in a research team. This is the third of six seminars during which Gemstone students carry out interdisciplinary research under the general guidance of a faculty mentor.

**GEMS 397 Team Project Seminar IV (2)** Prerequisite: For Gemstone students with junior standing in a research team. This is the fourth of six seminars during which Gemstone students carry out interdisciplinary research under the general guidance of a faculty mentor. The team develops its website, prepares and presents its progress at the Gemstone Colloquia and presents the team project in the poster session.

**GEMS 496 Project Writing Seminar (2)** Prerequisite: GEMS397. For Gemstone participants only. Students will further develop and use teamwork skills to complete interdisciplinary research under the general guidance of a faculty mentor. The student subgroup will investigate broad interdisciplinary challenges of societal, environmental, business, or policy significance that have a significant technological component in their potential solution. Intermediate research results will be presented by each team.

**GEMS 497 Team Thesis Defense (2)** Prerequisite: GEMS496. For Gemstone participants only. Gemstone teams will complete the team research project and thesis. The team will formally present the thesis to experts in the area of interest at a Team Thesis Conference.

### GEOG – Geography

**GEOG 100 Introduction to Geography (3)** An introduction to the broad field of geography as it is applicable to the general education student. The course presents the basic rationale of variations in human occupancy of the earth and stresses geographic concepts relevant to understanding world, regional and local issues.

**GEOG 110 The World Today: A Regional Geography (3)** An examination of the functioning world today and the regions and major countries that are part of the whole. Organized around the framework of modern and traditional lifestyles with the aim of providing understanding of the world and its regions for the general education student.

**GEOG 123 Causes and Implications of Global Change (3)** Also offered as AOSC123, and GEOL123. Credit will be granted for only one of the following: AOSC123, GEOG123, GEOL123, or METO123. A unique experience in integrating physical, chemical, geological, and biological sciences with geographical, economic, sociological, and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long- term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological, and human behavioral systems interact, and the repercussions which may follow human endeavors. The manner in which to approach decision and policy making related to global change.

**GEOG 130 Developing Countries (3)** An introduction to the geographic characteristics of the development problems and prospects of developing countries. Spatial distribution of poverty, employment, migration and urban growth, agricultural productivity, rural development, policies and international trade. Portraits of selected developing countries.

**GEOG 140 Coastal Environments (3)** Introduction to coastal environments, with emphasis on U.S. East Coast. Physical and ecological systems, beach processes, waves, currents, human impacts, coastal zone management and shoreline engineering. Case studies of coastal areas, including Ocean City, Maryland.

**GEOG 170 Maps and Map Use (3)** The use and interpretation of maps encountered in both “everyday” reading and in scientific literature. Development of skills in map reading, environmental analysis, interpretation and orienteering.

**GEOG 201 Geography of Environmental Systems (3)** A systematic introduction to the processes and associated forms of the atmosphere and earth’s surfaces emphasizing the interaction between climatology, hydrology and geomorphology.

**GEOG 202 The World in Cultural Perspective (3)** The imprint of cultural traits, such as religion, language and livelihood systems, on the earth’s landscape. The transformation of the earth’s surface as a result of cultural diversity, settlement patterns, political organization, cultural evolution, and population growth.

**GEOG 211 Geography of Environmental Systems Laboratory (1)** Two hours of laboratory per week. Pre- or corequisite: GEOG201 or GEOL100 or GEOL120. A laboratory course to accompany GEOG 201. Analysis of the components of the earth’s energy balance using basic instrumentation; weather map interpretation; soil analysis; the application of map and air photo interpretation techniques to landform analysis.

**GEOG 212 The World in Cultural Perspective Laboratory (1)** Two hours of laboratory per week. Pre- or corequisite: GEOG202. For GEOG majors only. Introduction to the basic methods and techniques employed in human geography.

**GEOG 305 Quantitative Methods in Geography (3)** A practical introduction to data sources and measurement, descriptive statistics, data collection, sampling and questionnaire design, field techniques, map use, computer use and data presentation.

**GEOG 306 Introduction to Quantitative Methods for the Geographic Environment Sciences (3)** Also offered as GEOG398Q. Credit will be granted for only one of the following: GEOG398Q or GEOG306. Formerly GEOG 398Q. Essentials in the quantitative analysis of spatial and other data, with a particular emphasis on statistics and programming. Topics include data display, data description and summary, statistical inference and significance tests, analysis of variance, correlation, regression, and some advanced concepts, such as matrix methods, principal component analysis, and spatial statistics. Students will develop expertise in data analysis using advanced statistical software.

**GEOG 310 Maryland and Adjacent Areas (3)** Credit will be granted for only one of the following: GEOG310 or GEOG321. Formerly GEOG 321. The physical environment, natural resources, and population in relation to agriculture, industry, transport, and trade in the State of Maryland and adjacent areas.

**GEOG 312 The United States and Canada (3)** Credit will be granted for only one of the following: GEOG312 or GEOG320. Formerly GEOG 320. The two countries as functioning geographic systems with important differences and key linkages. An examination of the cultural, environmental, and economic components and their spatial variation. Attention to the role of regions in national economies.

**GEOG 313 Latin America (3)** Credit will be granted for only one of the following: GEOG313 or GEOG323. Formerly GEOG 323. A geography of Latin America and the Caribbean in the contemporary world: political and cultural regions, population and resource distribution, historical development, current levels of economic and social well-being, urbanization, development policies, migration trends, physical features and climates.

**GEOG 324 Europe (3)** The geographical diversity of modern Europe from landscape and regional perspectives. The diverse features of Europe’s physical environment and resource base, and their integration into the demographic, economic, social and political patterns of the continent’s major geographic regions.

**GEOG 326 Africa (3)** A geography of sub-Saharan Africa: physical features, climates, political and cultural regions. Population and resource distribution, current levels of economic and social well-being, urbanization development policies, projects and constraints, and migration trends.

**GEOG 328 Topics in Regional Geography (3)** Repeatable to 6 credits if content differs. Selected topics in regional geography.

**GEOG 330 Cultural Geography (3)** Prerequisite: GEOG201, GEOG202, ANTH220, or ANTH260; or permission of department. Credit will be granted for only one of the following: GEOG330, GEOG360, or GEOG362. Formerly GEOG 362. Impact of humans through ideas and technology on the evolution of geographic landscapes. Major themes in the relationships between cultures and environments.

**GEOG 331 Introduction to Human Dimensions of Global Change (3)** Prerequisites: GEOG201, GEOG202, ANTH220, or ANTH260; or permission of department. Credit will be granted for only one of the following: GEOG331 or GEOG361. Formerly GEOG 361. Introduction to global-scale interrelationship between human beings and the environment. The development of global issues including but not limited to the environment, food, energy, technology, population, and policy.

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**GEOG 332 Economic Geography (3)** Credit will be granted for only one of the following: GEOG203, GEOG303, or GEOG332. Formerly GEOG 303. Principles of managing scarce resources in a world where everyone faces tradeoffs across both time and space. Focuses on the relationship between globalization processes and changing patterns of locational advantages, production, trade, population, socioeconomic and environmental grace and sustainability.

**GEOG 334 The American City: Past and Present (3)** Credit will be granted for only one of the following: GEOG334 or GEOG350. Formerly GEOG 350. Development of the American city from the early 19th century to the present. The internal structure of contemporary metropolitan areas, the spatial arrangement of residential, commercial, and other activities. Washington, D.C. and Baltimore examples.

**GEOG 340 Geomorphology (3)** Survey of landform types and role of processes in their generation. Frequency of occurrence and implications for land utilization. Emphasis on coastal, fluvial, and glacial landforms in different environmental settings. Landform regions of Maryland.

**GEOG 342 Introduction to Biogeography (3)** Prerequisite: GEOG201. Recommended: GEOG211. Credit will be granted for only one of the following: GEOG342 or GEOG347. Formerly GEOG 347. The principles of biogeography, including the patterns, processes and distributions of living organisms from local to global scales, aspects of ecophysiology, population and community ecology and evolutionary biology. Spatial processes in the biosphere will be covered.

**GEOG 345 Introduction to Climatology (3)** The geographic aspects of climate with emphasis on energy-moisture budgets, steady-state and non steady-state climatology, and climatic variations at both macro-and micro-scales.

**GEOG 360 Cultural Geography (3)** Prerequisite: GEOG201 or GEOG202 or ANTH101 or ANTH102. Junior standing. Credit will be granted for only one of the following: GEOG360 or GEOG420. Formerly GEOG 420. Impact of humans through ideas and technology on the evolution of geographic landscapes. Major themes in the relationships between cultures and environments.

**GEOG 372 Remote Sensing (3)** Principles of remote sensing in relation to photographic, thermal infrared and radar imaging. Methods of obtaining quantitative information from remotely-sensed images. Interpretation of remotely-sensed images emphasizing the study of spatial and environmental relationships.

**GEOG 373 Geographic Information Systems (3)** Two hours of lecture and two hours of laboratory per week. Characteristics and organization of geographic data; creation and use of digital geospatial databases; metadata; spatial data models for thematic mapping and map analysis; use of geographic information system in society, government, and business. Practical training with use of advanced software and geographic databases.

**GEOG 375 Computer Cartography (3)** Credit will be granted for only one of the following: GEOG370, GEOG371, or GEOG375. Formerly GEOG 371. Principles of cartographic database, earth-map relations, map design, symbolization and color usage. Practical skills of making different thematic maps using simple software packages.

**GEOG 384 Internship in Geography (3)** Prerequisite: GEOG305; and GEOG310; and permission of department. Corequisite: GEOG385. Supervised field training to provide career experience. Introduction to professional level activities, demands, opportunities. Placement at a public agency, non-profit organization, or private firm. Participation requires application to the internship advisor in preceding semester.

**GEOG 385 Internship Research Paper (3)** Prerequisite: GEOG305; and GEOG310; and permission of department. Corequisite: GEOG384. Seminar conducted on campus. Research paper related to the student's internship.

**GEOG 396 Honors Research (3)** Prerequisite: permission of department. Senior standing. For GEOG majors only. Formerly GEOG 397. First course in the departmental honors sequence. Student development of a potential research topic under the guidance of a faculty advisor, culminating in a written and oral presentation of a research proposal.

**GEOG 397 Honors Thesis (3)** Prerequisite: GEOG396. Senior standing. For GEOG majors only. Formerly GEOG 399. Second course in the departmental honors sequence. Student research under the auspices of a faculty advisor, culminating in a research paper to be defended orally before the geography honors committee.

**GEOG 398 Special Topics in Geography (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: GEOG298 or GEOG398. Formerly GEOG 298. An introductory course dealing with special topics in geography.

**GEOG 410 Washington, D.C.: Past and Present (3)** Credit will be granted for only one of the following: GEOG410 or GEOG454. Formerly GEOG 454. Development of the Washington, D.C. area from its origin as the Federal Capital to its role as a major metropolitan area. The geographic setting, the L'Enfant Plan and its modification, the federal government role, residential and commercial structure. The growth of Washington's suburbs.

**GEOG 418 Field and Laboratory Techniques in Environmental Science (1-3)** Prerequisite: permission of department. Credit will be granted for only one of the following: GEOG418 or GEOG448. Formerly GEOG 448. Lecture and laboratory learning each week. A variable credit course that introduces field and laboratory analyses in environmental science. Individual learning contract are developed with instructor.

**GEOG 431 Culture and Natural Resource Management (3)** Credit will be granted for only one of the following: GEOG421 or GEOG431. Formerly GEOG 421. Basic issues concerning the natural history of humans from the perspective of the geographer. Basic components of selected behavioral and natural systems, their evolution and adaptation, and survival strategies.

**GEOG 432 Location Theory and Spatial Analysis (3)** Credit will be granted for only one of the following: GEOG430 or GEOG432. Formerly GEOG 430. Theories and procedures for determining the optimal location of industrial, commercial and public facilities. Techniques to evaluate location decisions. The provision of services with regions and metropolitan areas. Emerging trends.

**GEOG 433 Transportation Networks (3)** The theory and practice of analyzing transportation networks, including modes, links, routes, flows and regions. Examples drawn from different transportation modes.

**GEOG 434 The Contemporary City (3)** Credit will be granted for only one of the following: GEOG434 or GEOG450. Formerly GEOG 450. The contemporary urban system: towns, cities and metropolitan areas and their role as concentrations of social and economic activity. Patterns of land-use: residential, employment, commercial activity, manufacturing, and transportation. Explanatory and descriptive models. International comparisons.

**GEOG 435 Population Geography (3)** Credit will be granted for only one of the following: GEOG422 or GEOG435. Formerly GEOG 422. The spatial characteristics of population distribution and growth, migration, fertility and mortality from a global perspective. Basic population-environmental relationships; carrying capacity, density, relationships to national development.

**GEOG 436 Issues in Urban Transportation (3)** Spatial patterns of personal travel, movement of goods, and public transit services in cities. Transportation and land use. Public policy issues; transportation access, energy use, and neighborhood disruption. Methods of data collection and analysis, travel demand surveys.

**GEOG 437 Political Geography (3)** Credit will be granted for only one of the following: GEOG423 or GEOG437. Formerly GEOG 423. Geographical factors in the national power and international relations; an analysis of the role of geopolitics and geostrategy, with special reference to the current world scene.

**GEOG 438 Seminar in Human Geography (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics in human geography.

**GEOG 440 Advanced Geomorphology (3)** Prerequisite: GEOG340 or GEOL340 or permission of department. Credit will be granted for only one of the following: GEOG440 or GEOG441. Formerly GEOG 441. A quantitative investigation of the fundamental geomorphic processes shaping modern landscapes, with emphasis on coastal, fluvial or glacial processes. Discussion of historical environments. Field, instrumentation and laboratory analyses.

**GEOG 442 Biogeography (3)** Prerequisite: GEOG342 or equivalent. Recommended: GEOG123. Credit will be granted for only one of the following: GEOG442, GEOG447, or GEOG484. Formerly GEOG 447. Current Biogeographical topics of global significance, including a consideration of measurement techniques, and both descriptive and mechanistic modeling. Topics may include: scale in biogeography, climate and vegetation, global carbon cycle, biodiversity, interannual variability in the biosphere, land cover, global biospheric responses to climate change, NASA's Mission to Planet Earth and Earth Observation System.

**GEOG 445 Climatology (3)** Prerequisite: GEOG345. Credit will be granted for only one of the following: GEOG445 or GEOG446. Formerly GEOG 446. Quantitative investigations into the Earth's radiation balance, water cycle, and the interrelationship of climate and vegetation. Methodologies in climate research. Case studies related to global climatic change.

**GEOG 446 Applied Climatology (3)** Prerequisite: GEOG345 or permission of department. Components of earth's radiation balance and energy budgets: radiation, soil heat flux and the evaporation process. Measurement and estimation techniques. Practical applications of microclimatological theory and techniques.

**GEOG 456 The Social Geography of Metropolitan Areas in Global Perspective (3)** A socio-spatial approach to human interaction within the urban environments: ways people perceive, define, behave in, and structure world cities and metropolitan areas. Cultural and social differences define spatial patterns of social activities which further define distinctions in distribution and interaction of people and their social institutions.

**GEOG 471 Advanced Computer Cartography (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: GEOG371. Credit will be granted for only one of the following: GEOG471 or GEOG481. Formerly GEOG 481. Advanced topics and skills of computer map mapping using more sophisticated software package. Map projection evaluation and selection, coordinate system conversion, techniques of quantitative thematic mapping, map design and generalization, hypermedia and animated cartography. Emphasis on designing and making cartographically sound sophisticated thematic maps.

**GEOG 472 Remote Sensing: Digital Processing and Analysis (3)** Prerequisite: GEOG306, GEOG372 or equivalent. Credit will be granted for only one of the following: GEOG472 or GEOG480. Formerly GEOG 480. Digital image processing and analysis applied to satellite and aircraft land remote sensing data. Consideration is given to preprocessing steps including calibration and geo registration. Analysis methods include digital image exploration, feature extraction thematic classification, change detection, and biophysical characterization. One or more application examples may be reviewed.

**GEOG 473 Geographic Information Systems and Spatial Analysis (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: GEOG373. Credit will be granted for only one of the following: GEOG473 or GEOG482. Formerly GEOG 482. Analytical uses of geographic information systems; data models for building geographic data bases; types of geographic data and spatial problems; practical experience using advanced software for thematic domains such as terrain analysis, land suitability modeling, demographic analysis, and transportation studies.

**GEOG 496 NASA Academy (4)** Two hours of lecture and four hours of laboratory per week. Prerequisite: College Permission. Junior standing. Also offered as CMPS496 and ENES496. Credit will be granted for only one of the following: CMPS496, GEOG496 or ENES496. A ten-week resident summer institute at Goddard Space Flight Center for juniors, seniors and first-year graduate students interested in pursuing professional and leadership careers in aerospace-related fields. The national program includes research in a Goddard laboratory, field trips to NASA centers, and a combination of lectures and workshops on the mission, current activities and management of NASA. Students interested in the Academy will find information at <http://nasa-academy.nasa.gov> Application should be made by the end of January; sponsorship by an affiliated State Space Grant Consortium is customary, but not required.

**GEOG 498 Topical Investigations (1-3)** Restricted to advanced undergraduate students with credit for at least 24 hours in geography and to graduate students. Any exceptions should have approval of department. Repeatable to 6 credits if content differs. Independent study under individual guidance.

### GEOL – Geology

**GEOL 100 Physical Geology (3)** Credit will be granted for only one of the following: GEOL100 or GEOL120. A general survey of the rocks and minerals composing the earth, its surface features and the agents that form them, and the dynamic forces of plate tectonics.

**GEOL 102 Historical Geology (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL100 or GEOL120, and GEOL110 or permission of department. Earth's history as revealed through the principles of stratigraphy and the processes of physical geology. Emphasis on formations and geologic development of the North American continent.

**GEOL 104 Dinosaurs: A Natural History (3)** Dinosaurs, their evolution and extinction in the context of changing environments. Students will examine the geologic record and the tools used by geologists to determine geologic ages and sequences, dinosaur biology and classification, dinosaur social structure, and their role in the ecosystem. Mechanisms of global change ranging from plate tectonics to asteroid impact will be discussed.

**GEOL 110 Physical Geology Laboratory (1)** Three hours of laboratory per week. Pre- or corequisite: GEOL100 or GEOL120. The basic materials and tools of physical geology stressing familiarization with rocks and minerals and the use of maps in geologic interpretations.

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**GEOL 120 Environmental Geology (3)** Credit will be granted for only one of the following: GEOL100 or GEOL120. A review of geologic factors underlying many environmental problems and the interactions between population and physical environment: geologic hazards, land-use planning, conservation, mineral resources, waste disposal, land reclamation, and the geologic aspects of health and disease. The course is aimed at lower division students in education and liberal arts, and should be useful to any student concerned with geologic perspectives of environmental problems.

**GEOL 123 Causes and Implications of Global Change (3)** Also offered as AOSC123, and GEOG123. Credit will be granted for only one of the following: AOSC123, GEOG123, GEOL123, or METO123. This course offers a unique experience in integrating physical, chemical, geologic, and biological sciences with geographical, economic, sociological and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long-term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological, and human behavioral systems interact, and the repercussions which may follow from human endeavors. The manner in which to approach decision and policy making related to issues of global change.

**GEOL 210 Gems and Gemstones (3)** A survey of the origin, occurrences, properties, fashioning, and treatments of natural and synthetic materials, with emphasis on diamonds and colored stones.

**GEOL 212 Planetary Geology (3)** An examination of the geologic and geochemical processes at work in the solar system from the perspectives supplied by space age exploration of the planets and other solar system bodies.

**GEOL 214 Global Energy Systems and Resources (3)** Prerequisite: A course in the natural sciences, environmental policy, geography, or permission of the instructor. Possible courses include: CPSP123, ENSP101, ENSP102, GEOG100, GEOG201, GEOL100, GEOL120, MATH140, or PHYS117, CHEM131 and CHEM132, CHEM135 and CHEM136, or CHEM103. Focuses on energy systems and resources on a global scale. It addresses energy transfer in natural systems, distribution of energy resources in the natural world, and problems of efficiency and limited energy resources. It is appropriate for those interested in science and technical energy issues as well as policy, education and the media.

**GEOL 288 Field Studies I (1)** Repeatable to 3 credits if content differs. Examination and investigation of Earth Science phenomena in the field, particularly geology. Involves fieldwork of one week or longer duration, which work normally includes both observation and data collection. Particular programs may require certain prerequisites. Permission of Instructor is required. Special fees may be necessary.

**GEOL 322 Mineralogy (4)** Three hours of lecture and three hours of laboratory per week. Prerequisites: GEOL100 or GEOL120, GEOL110; and one of the following: CHEM131 and CHEM132, CHEM135 and CHEM136; or CHEM103. Basic mineralogy for geology majors. The principles of morphologic crystallography, crystal chemistry, and determinative mineralogy.

**GEOL 331 Principles of Paleontology (4)** Three hours of lecture and three hours of laboratory per week. Prerequisites: GEOL100 or GEOL120, GEOL110, and GEOL102; or permission of department. A review of the theory, principles, and applications of Paleontology. A systematic overview of the morphology, evolution, and relationships of the major fossil-producing taxa.

**GEOL 340 Geomorphology (4)** Three hours of lecture and three hours of laboratory per week. Two Saturday field trips. Prerequisite: GEOL100 or GEOL120. Analysis of landforms, organized on the basis of the geologic processes that have operated during the late Cenozoic. Constructional and erosional landforms related to physical systems operating on geologic structures through time.

**GEOL 341 Structural Geology (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL100 or GEOL120, GEOL110, and GEOL102; or permission of department. Study of the deformation of Earth's lithosphere, especially stress, rheology, strain, and the origin and significance of structural features. Development of 3-dimensional thinking through drafting and drawing of structures, construction of geologic maps and cross-sections, and stereographic and orthographic representation of structures. Improvement of scientific writing. Two weekend field trips.

**GEOL 342 Sedimentation and Stratigraphy (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL100 or GEOL120, GEOL110, and GEOL322; and one of the following: CHEM131 and CHEM132, CHEM135 and CHEM136, or CHEM103. Description, origin, and distribution of sediments and sedimentary rocks. Mandatory field trip.

**GEOL 375 Introduction to the Blue Ocean (3)** Prerequisite: MATH140. Recommended: MATH141, PHYS161, or PHYS171. Also offered as AOSC375. Credit will be granted for only one of the following: AOSC375, GEOL375, or METO375. Introduction to physical, chemical, and biological properties of the ocean. Role of the ocean in climate as a component of the Earth system. El Nino and the ocean, impact of global warming on the ocean and marine habitats including fisheries.

**GEOL 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**GEOL 388 Field Studies II (3)** Repeatable to 6 credits if content differs. Examination and investigation of Earth Science phenomena in the field, particularly geology. Involves field work of one week or a longer duration, which would normally involve both observations and data collection, with associated classroom lectures and/or laboratory study, normally including additional analysis of collected observations and data. Particular programs may require certain prerequisites. Permission of instructor required. Special fees may be necessary.

**GEOL 393 Technical Writing for Geoscientists (3)** Prerequisites: For GEOL majors only; minimum of Junior standing and at least 2 Upper Level GEOL courses with at least a third GEOL course concurrent. Planning, writing and presenting a plan for research in the geosciences.

**GEOL 394 Research Problems in Geology (3)** Prerequisite: For GEOL majors only; minimum of Junior standing, GEOL393 and at least 3 Upper Level GEOL courses. Investigation of a specific laboratory, library or field problem. Written and oral presentation of the study.

**GEOL 410 Industrial Rocks and Minerals (3)** Prerequisite: GEOL322. The origin; occurrence; mineralogy; extraction and treatment technology; production and deposit-evaluation of rocks and minerals used in the construction, ceramic, chemical and allied industries. Restricted to non-fuels, non-metallic, non-gem materials. Field trips to industrial locations are required.

**GEOL 423 Optical Mineralogy (4)** One hour of lecture and four hours of laboratory per week. Prerequisites: GEOL100 or GEOL120, GEOL110, GEOL322, and one of the following: CHEM131 and CHEM132, CHEM135 and CHEM136, or CHEM103. The optical behavior of crystals with emphasis on the theory and application of the petrographic microscope.

**GEOL 436 Principles of Biogeochemistry (3)** Three hours of lecture per week. Prerequisite: MATH140 or 220, GEOL100 or GEOL120, GEOL322, and one of the following: CHEM131 and CHEM132, CHEM135 and CHEM136, or CHEM103. An introduction to the basic principles of biogeochemistry including aspects of organic geochemistry, biochemistry, microbiology, global geochemical cycles, the origin of life and paleoenvironmental evolution.

**GEOL 437 Global Climate Change: Past and Present (3)** Prerequisite: MATH115 or MATH140; GEOL100 or GEOL120, and one of the following: CHEM131 and CHEM132, CHEM135 and CHEM136, or CHEM103. The goal of the course is to highlight the fact that global climate change is part of the Earth's past as well as of its present and future. Changes in climate that have occurred in the geologic past can be viewed as the Earth's natural climate variability. These changes are different from, though could be linked with, historical and present anthropogenically-induced climate change. We will discuss the modern climate system, the factors capable of forcing climate change on various time scales, the geologic proxies of past climate change and what these proxies tell us. Finally, we will compare and contrast past climate change with what is understood (and not understood) about modern climate change.

**GEOL 443 Petrology (4)** Two lectures and one laboratory per week. Prerequisites: GEOL100 or GEOL120, GEOL110, and GEOL322, and one of the following: CHEM131 and CHEM132, CHEM135 and CHEM136, or CHEM103. Corequisite: GEOL423. Study of igneous and metamorphic rocks: petrogenesis, distributions, chemical and mineralogical relations, macroscopic and microscopic descriptions, geologic significance.

**GEOL 444 Low Temperature Geochemistry (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: CHEM103, or CHEM135 and CHEM136; MATH115, GEOL100, and GEOL322. Basic chemical principles, thermodynamics, and kinetics of low-temperature inorganic and organic geochemical reactions in a wide range of surface environments. These geochemical tools will be used to provide a context for understanding elemental cycling and climate change. Laboratories will include problem sets as well as wet chemical and mass spectrometric techniques used in low temperature geochemistry.

**GEOL 445 High Temperature Geochemistry (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: CHEM103, or CHEM135 and CHEM136; MATH115, GEOL100, and GEOL322. Review of chemical principles and their use in understanding processes of Earth, and solar system formation and differentiation. Topics include nucleosynthesis and

cosmochemical abundances of elements, bonding and element partitioning, equilibrium thermodynamics and phase stabilities, radiogenic isotopes and geochronology, kinetics, and diffusion.

**GEOL 446 Geophysics (3)** Two lectures and one laboratory per week. Prerequisite: PHYS142. An introduction to the basic theories and principles of geophysics stressing such important applications as rock magnetism, gravity anomalies, crustal strain and earthquakes, and surveying.

**GEOL 451 Groundwater (3)** Prerequisites: MATH140, GEOL100 or GEOL120, GEOL110 and one of the following: CHEM131 and CHEM132, CHEM135 and CHEM136, or CHEM103; or permission of department. Junior standing. An introduction to the basic geologic parameters associated with the hydrologic cycle. Problems in the accumulation, distribution, and movement of groundwater will be analyzed.

**GEOL 452 Watershed and Wetland Hydrology (3)** Prerequisite: permission of department. Junior standing. Physical processes by which water moves in watershed and wetland systems. Topics include: precipitation, infiltration, flow in the unsaturated zone, streamflow generation processes, and groundwater flow.

**GEOL 462 Geological Remote Sensing (3)** One lecture and two laboratories per week. Prerequisite: One of the following: GEOL100/110; GEOL120/110; or GEOL103. An introduction to geologic remote sensing including applications of aerial photographic interpretation to problems in regional geology, engineering geology, structural geology, and stratigraphy. Films, filters, and criteria used in selecting imagery are also discussed. Laboratory exercises include measurements of geologic parameters and compilation and transference of data to base maps.

**GEOL 471 Geochemical Methods of Analysis (3)** Prerequisite: One of the following: CHEM131 and CHEM132, CHEM135 and CHEM136, or CHEM103; and CHEM113. Principles and application of geochemical analysis as applied to a variety of geological problems. X-ray and optical spectroscopy, X-ray diffraction, atomic absorption, electron microprobe, and electron microscopy.

**GEOL 472 Tectonics (3)** Prerequisites: GEOL100 or GEOL120, GEOL110, GEOL102, and GEOL341; or permission of department. Selected tectonic elements of orogenic belts through out the world viewed in the framework of plate tectonics and sea floor spreading.

**GEOL 489 Special Topics (3)** Prerequisites: For GEOL majors only; minimum of Junior standing and a least 2 Upper Level GEOL courses with at least a third GEOL course and GEOL393 concurrent. Recent advances in geology.

**GEOL 490 Geology Field Camp (6)** Prerequisite: GEOL341 and GEOL443. Intense field geology course taught off campus during the summer. Students describe and compile maps of formations and structures from outcrops, subsurface, and remotely sensed data. Special fees required.

**GEOL 491 Environmental Geology Field Camp (3-6)** Prerequisites: GEOL341 and GEOL342 and GEOL451 or permission of department. Credit will be granted for only one of the following: GEOL490 or GEOL491. Intensive field course designed for students of environmental geology. Students will learn to make maps, to describe soil profiles and site characteristics, to monitor hydrologic and groundwater conditions, and to measure geologic structures and stratigraphic sections.

**GEOL 499 Special Problems in Geology (1-3)** Prerequisites: GEOL100 or GEOL120, GEOL110, GEOL102; or equivalent; and permission of department. Intensive study of a special geologic subject or technique selected after consultation with instructor. Intended to provide training or instruction not available in other courses which will aid the student's development in his or her field of major interest.

### GERM – Germanic Studies

**GERM 101 Elementary German I (4)** One hour of laboratory and four hours of discussion/recitation per week. Formerly GERM 111. Introduction to basic structures and pronunciation by emphasis on the four skills: listening, speaking, reading and writing. Readings concern the current lifestyle and civilization of the German-speaking world.

**GERM 102 Elementary German II (4)** One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: GERM101 or equivalent. Formerly GERM 112. A continuation of GERM 101, completing the introduction of basic structures and continuing the involvement with the civilization of the German-speaking world.

**GERM 103 Intensive Elementary German (4)** One hour of laboratory and four hours of discussion/recitation per week. Not open to students who have completed GERM101, GERM102, more than two years of high school German, or is a fluent/native speaker of German. Credit will be granted for only one of the following: GERM102 or GERM103. Covers speaking, reading, writing, listening, and culture of German-speaking world.



## 210 Approved Courses

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**GERM 148 Germanic Languages - Elementary I (3)** Repeatable to 6 credits if content differs. Basic instruction in a Germanic language other than German; Yiddish and Swedish are offered regularly, Danish, Netherlandic, and Norwegian when demand is sufficient. Subtitle will reflect the language. May be repeated in a different language.

**GERM 149 Germanic Languages - Elementary II (3)** Prerequisite: GERM148 in the same language. Continuation of GERM148. May be repeated in a different language. Subtitle will reflect the language.

**GERM 201 Intermediate German I (4)** One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: GERM102. Grammar review and greater mastery of vocabulary, idioms, conversational fluency, and compositional skills. Readings stress the current lifestyle and civilization of the German-speaking world.

**GERM 202 Intermediate German II (4)** Four hours of lecture and one hour of laboratory per week. Prerequisite: GERM201. Continuation of GERM201. Grammar review and greater mastery of vocabulary, idioms, conversational fluency and compositional skills. Readings stress the current lifestyle and civilization of the German-speaking world.

**GERM 203 Intensive Intermediate German (4)** Prerequisite: GERM103 or equivalent. Not open to students who have completed GERM201, GERM202, four years of high school German, or is a fluent/native speaker of German. Credit will be granted for only one of the following: GERM202 or GERM203. Covers speaking, reading, writing, listening, and culture of German-speaking world.

**GERM 204 German Grammar Review (3)** Three hours of lecture per week. Prerequisite: GERM203 or level 4 of high school German. Not open to fluent/native speakers. An in-depth study and analysis of selected grammatical topics in a contextualized framework.

**GERM 220 Introduction to German Literature (3)** Prerequisite: GERM202. Reading and discussion of major authors with emphasis on contemporary German literature. Readings and instruction in German.

**GERM 248 Germanic Languages Intermediate - I (3)** Prerequisite: GERM149 in the same language. Intermediate instruction in a Germanic language other than German. May be repeated in a different language. Subtitle will reflect the language.

**GERM 249 Germanic Languages - Intermediate II (3)** Prerequisite: GERM248 in the same language. Continuation of GERM248. May be repeated in a different language. Subtitle will reflect the language.

**GERM 280 German-American Cultural Contrast (3)** A study of German-American culture in contemporary literature.

**GERM 281 Women in German Literature and Society (3)** Also offered as WMST281. Credit will be granted for only one of the following: GERM281 or WMST281. A study of changing literary images and social roles of women from the beginning of the 19th century to the present.

**GERM 282 Germanic Mythology (3)** An introduction to the religious beliefs of the pagan Germanic peoples. Comparison of Germanic myths with those of other Indo-European peoples. The conversion of the Germania to Christianity and the preservation of pagan beliefs in superstition and literature.

**GERM 283 Viking Culture and Civilization (3)** Formerly GERM 383. An introduction to the lifestyle of northern Europe in the 9th to 11th centuries. Readings and instruction in English.

**GERM 284 German Chivalric Culture (3)** Formerly GERM 384. An introduction to the lifestyle of northern Europe in the 12th to 14th centuries. Readings and instruction in English.

**GERM 285 German Film and Literature (3)** A visual approach to German literature through a study of the historical, cultural, and literary significance of German films. Representative examples from the golden age of German silent films to the new German cinema.

**GERM 287 Ancient Celtic Culture and Civilization (3)** Formerly GERM 372. An introduction to the culture and civilization of the Ancient Celts; religion, arts, ethics and law of the continental and island Celts. Focus on the Ulster and Fenian cycles in Ireland; Taliesin, Aneirin and the Mabinogion in Wales. Reconstruction of the lifestyle of the period. Instruction and readings in English.

**GERM 289 Selected Topics in the Cultures of the Germanic Speaking Countries (3)** Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Topics in the cultures of the Germanic speaking countries.

**GERM 299 Special Topics in Germanic Studies (3)** Prerequisite: permission of department. Repeatable to 9 credits if content differs.

**GERM 301 Conversation and Composition I (3)** Prerequisite: GERM202 or equivalent. Practice in contemporary spoken and written German. Systematic review of grammar, and exercise in composition. Emphasis on cultural contrasts.

**GERM 302 Conversation and Composition II (3)** Prerequisite: GERM301 or equivalent. Continuation of GERM301.

**GERM 319 Selected Topics in Germanic Language Studies (1-3)** Prerequisite: GERM202 or equivalent. Repeatable to 6 credits if content differs.

**GERM 321 Highlights of German Literature I (3)** Prerequisite: GERM220 or equivalent. Selected masterworks from different periods of German literature: middle ages, reformation, baroque, 18th century, classicism. Readings and instruction in German.

**GERM 322 Highlights of German Literature II (3)** Prerequisite: GERM220 or equivalent. Selected masterworks from different periods of German literature: romanticism, Biedermeier, Junges Deutschland, realism, naturalism and its counter currents, expressionism to the present. Readings and instruction in German.

**GERM 339 German Literature In Translation (3)** Repeatable to 6 credits if content differs. Selected movements, genres or other special topics in German literature. Readings and instruction in English. May not be counted in the fulfillment of German major requirements in German literature.

**GERM 349 Germanic Literatures in Translation (3)** Repeatable to 6 credits if content differs. Study of an important author, period or theme in a Germanic literature other than German: Yiddish, Netherlandic or Scandinavian. Readings and instruction in English.

**GERM 360 Women in Scandinavian Literature (3)** Prerequisite: a literature, culture, diversity course or permission of department. Introduction to and examination of women's creative work in Scandinavia from the Middle Ages to the present.

**GERM 368 Scandinavian Civilization (3)** Repeatable to 6 credits if content differs. Literary, artistic and historic traditions, folklore and superstition, customs and lifestyle shared by Scandinavian nations. Readings and instruction in English.

**GERM 369 Scandinavian Literature in Translation (3)** Repeatable to 6 credits if content differs. Study of a major Scandinavian author, genre, period or theme. Readings and instruction in English.

**GERM 381 German Civilization I (3)** A survey of the literary, educational and artistic traditions, great men and women, customs and general culture of the German-speaking world from the beginnings to the middle of the 18th century. All readings and instruction are in English.

**GERM 382 German Civilization II (3)** A continuation of GERM381 covering the development of German, Austrian and Swiss civilizations from the middle of the 18th century to the present. All readings and instruction are in English.

**GERM 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**GERM 388 Language House Spring Colloquium (1)** Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

**GERM 389 Topics in Germanic Culture (3)** Repeatable to 6 credits if content differs. Topics in the cultures of the German, Germanic, Indo-European peoples and of their culturally related non-Indo-European neighbors. Instruction in English.

**GERM 397 Honors Reading (Independent Study) (3)** Supervised reading to be taken normally only by students admitted into honors program.

**GERM 398 Honors Research (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Prepares students to write an honors thesis. Under the direction of a German department faculty member, the student will select a thesis topic and conduct the necessary research.

**GERM 399 Selected Topics in Germanic Studies (3)** Prerequisite: permission of department. Repeatable to 9 credits if content differs.

**GERM 401 Advanced Conversation (3)** Prerequisite: GERM302 or equivalent. Development of fluency in spoken German. Discussion of contemporary issues.

**GERM 403 Advanced Composition (3)** Prerequisite: GERM302 or equivalent. Advanced instruction in writing skills.

**GERM 405 Stylistics (3)** Prerequisite: GERM302 or equivalent. Stylistic analysis of oral and written German both literary and non-literary. Intensive study of vocabulary and syntax. Dictionary and composition exercises.

**GERM 411 German for International Business I (3)** Prerequisite: GERM302 or equivalent or permission of department. Advanced skills in German for international business, including understanding and writing correspondence, reports, graphics, ads, etc., according to current German commercial style.

**GERM 412 German for International Business II (3)** Prerequisite: GERM411 or equivalent or permission of department. Continuation of GERM411.

**GERM 415 German/English Translation I (3)** Does not fulfill major requirements in German. Not open to students who have completed GERM101, GERM102, GERM201, GERM202, GERM301 or GERM302. An intensive presentation of German grammar limited exclusively to reading skill; graded readings in the arts and sciences. Instruction in English; cannot be used to satisfy the arts and humanities foreign language requirement.

**GERM 416 German/English Translation II (3)** Prerequisite: GERM415 or equivalent. Written translation of materials from the student's field of study. Discussion of basic problems of German-to-English translation, with examples from students' projects. Instruction in English. Cannot be used to satisfy the arts and humanities foreign language requirement.

**GERM 419 Selected Topics in German Language Study (3)** Prerequisite: GERM302 and permission of department. Repeatable to 6 credits if content differs.

**GERM 421 Literature of the Middle Ages (3)** Prerequisite: GERM321 and 322 or permission of department. German literature from the 8th through the 15th centuries. Readings include Old High German texts; the German heroic, courtly and popular epic; Minnesang, Meistersang, the late Medieval epic: folk literature of the late Middle Ages. Read in modern German translation.

**GERM 422 From the Reformation Through the Baroque (3)** Prerequisite: GERM321 and GERM322 or permission of department. Readings of representative authors from the reformation and the period of humanism through the baroque (ca. 1450-1700). Readings and instruction in German.

**GERM 423 From Enlightenment through Storm and Stress (3)** Prerequisite: GERM321 and GERM322, or permission of department. Readings of representative authors from the Enlightenment (1720- 1785), the Age of Sentimentalism (1740-1780), and Storm and Stress (1767-1785). Readings and instruction in German.

**GERM 424 Classicism (3)** Prerequisite: GERM321 and GERM322, or permission of department. Readings of representative authors from the Age of Classicism (1786-1832). Readings and instruction in German.

**GERM 431 Romanticism and Biedermeier (3)** Prerequisite: GERM321 and GERM322, or permission of department. Readings of representative authors from the periods of Romanticism (1798-1835) and Biedermeier (1820-1850). Readings and instruction in German.

**GERM 432 Junges Deutschland and Realism (3)** Prerequisite: GERM321 and 322, or permission of department. Readings of representative authors from the periods of Junges Deutschland (1830-1850) and Realism (1850-1890). Readings and instruction in German.

**GERM 433 Naturalism and Its Counter Currents (3)** Prerequisite: GERM321 and GERM322, or permission of department. Readings of representative authors from the period of naturalism and its counter currents (1880-1920). Readings and instruction in German.

**GERM 434 Expressionism to 1945 (3)** Prerequisite: GERM321 and GERM322, or permission of department. Readings of representative authors from Expressionism through the period between the wars to the contrast of Nazi and Exile Literature (ca. 1910-1945). Readings and instruction in German.

**GERM 435 From 1945 to the Present (3)** Prerequisite: GERM321 and GERM322, or permission of department. Readings of representative authors from Germany, Austria, and Switzerland in the period from the end of World War II to the present. Readings and instruction in German.

**GERM 439 Selected Topics in German Literature (3)** Prerequisites: (GERM321 and GERM322) or permission of department. Repeatable to 6 credits if content differs. Special study of an author, school, genre, or theme. Readings and instruction in German.

**GERM 449 Selected Topics in Germanic Studies (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Study of a linguistic, literary or cultural topic in Yiddish, Netherlandic, or Scandinavian studies.

## Approved Courses 211

**GERM 461 Reading Swedish, Danish and Norwegian I (3)** Not open to students who have completed GERM148S, GERM149S, GERM148D, GERM149D, GERM148N or GERM149N. Develops reading facility in three languages in one semester, using modern Scandinavian texts from a variety of fields.

**GERM 463 The Icelandic Family Saga (3)** Analysis of the old Norse saga as historiography, literature, and folklore. Readings and instruction in English.

**GERM 472 Introduction to Germanic Philology (3)** Prerequisite: GERM202 or equivalent. Reconstructed proto-Germanic and surveys of Gothic, Old Norse, Old English, Old Saxon. The development of High German from the Old High German period through Middle High German to modern German; a short introduction to modern German dialectology. Instruction in English.

**GERM 475 Old Norse (3)** The language of the old Icelandic saga, the Eddas and Skaldic poetry. Reading of texts in the original; historical development of Old Norse and its role in the Germanic language family. No knowledge of German or a Scandinavian language required; instruction in English.

**GERM 479 Selected Topics in Germanic Philology (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics such as comparative Germanic studies, Old Norse language or readings in Old Norse literature, modern German dialectology.

**GERM 489 Selected Topics in Area Studies (1-3)** Prerequisite: GERM302 or equivalent or permission of department. Repeatable to 6 credits if content differs.

**GERM 498 Honors Thesis Writing (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Required for students pursuing departmental honors in Germanic languages and literatures. Under the direction of a German department faculty member, students write their honors theses.

**GERM 499 Directed Study (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

### GREK – Greek

**GREK 101 Elementary Ancient Greek I (4)** A student who has had two units of Greek in high school may register for GREK101 for purposes of review but not for credit. Study of basic grammar, development of reading facility, and introduction to Athenian life and culture in the fifth century B.C.

**GREK 102 Elementary Ancient Greek II (4)** Prerequisite: GREK101 or equivalent. Continuing development of basic grammar and reading skills; study and discussion of central aspects of Greek culture.

**GREK 111 Elementary Modern Greek I (3)** Not open to native speakers of Greek. Credit will be granted for only one of the following: FOLA108G or GREK111. Formerly FOLA 108G. An introduction to the language and culture of modern Greece. Students begin to acquire the basic tools of the language and to communicate, in simple everyday situations. This is the first of our two-semester sequence in Elementary Modern Greek and contributes to the fulfillment of the foreign language requirement of the College of Arts and Humanities.

**GREK 112 Elementary Modern Greek II (3)** Not open to native speakers of Greek. Prerequisite: GREK111 or permission of instructor. Credit will be granted for only one of the following: FOLA109G or GREK112. Formerly FOLA 109G. It is designed for students who have already completed the first semester course (GREK111) and/or those whose level of proficiency in Greek is not advanced enough for the intermediate level. Like GREK111, an introduction is provided to the language and culture of modern Greece. Students acquire the basic tools of the language and learn to communicate in simple, everyday situations. This is the second of our two-semester sequence in Elementary Modern Greek and contributes to the fulfillment of the foreign language requirement of the College of Arts and Humanities.

**GREK 201 Intermediate Ancient Greek (4)** Prerequisite: GREK102 or equivalent. Advancing beyond the basic skills developed in GREK 101 and GREK 102; review of selected grammatical concepts; continuous reading of passages from Greek literature.

**GREK 211 Intermediate Modern Greek I (3)** Not open to native speakers of Greek. Prerequisite: GREK112 or permission of instructor. Credit will be granted for only one of the following: FOLA118G or GREK211. Formerly FOLA 118G. A continuation of the study of basic structures and the development of fluency in functional, spoken and written communication. This is the first of our two-semester sequence in Intermediate Modern Greek and contributes to the fulfillment of the foreign language requirement of the College of Arts and Humanities.

**GREK 212 Intermediate Modern Greek II (3)** Prerequisite: GREK211 or permission of instructor. Credit will be granted for only one of the following: FOLA119G or GREK212. Formerly FOLA 119G. A continuation in the development of fluency in spoken and written communication along with the exploration of syntactic and grammatical structures. Comprehension and vocabulary enrichment are further developed through selected readings from Modern Greek prose and poetry. This is the second of our two-semester sequence in Intermediate Modern Greek and contributes to the fulfillment of the foreign language requirement of the College of Arts and Humanities.

**GREK 301 Scenes from Athenian Life (3)** Credit will be granted for only one of the following: GREK301 or GREK351. Formerly GREK 351. Makes the transition from study of Greek grammar to reading. Focus on selected aspects of life in Athens: marriage, friendship, the courts, festival, theatre. Reading Short works by three authors: Lysias, Plato, and a playwright (e.g., Menander).

**GREK 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**GREK 402 Greek Philosophers (3)**

**GREK 403 Greek Tragedy (3)**

**GREK 415 Homer (3)** Prerequisite: permission of department. Extensive readings in Greek from the Iliad and the Odyssey, with special attention to the features of Homeric style and the similarities and differences between the two epics.

**GREK 472 History and Development of the Greek Language (3)** Prerequisite: permission of instructor. Mastery of ancient Greek through grammar review, prose composition, and analysis of historical developments in Greek writers' modes of expression.

**GREK 488 Greek Readings (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. The reading of one or more selected Greek authors. Reports.

**GREK 499 Independent Study in Greek Language and Literature (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

### GVPT – Government and Politics

**GVPT 100 Principles of Government and Politics (3)** A study of the basic principles and concepts of political science.

**GVPT 170 American Government (3)** A comprehensive study of national government in the United States.

**GVPT 200 International Political Relations (3)** Prerequisite: GVPT100. A study of the major factors underlying international relations, the methods of conducting foreign relations, the foreign policies of the major powers, and the means of avoiding or alleviating international conflicts.

**GVPT 210 Introduction to Public Administration and Policy (3)** Prerequisite: GVPT170. An introduction to the study of the administrative process in the executive branch with an examination of the concepts and principles of administration and their relationship to public policy. The organizational structure, theory and the behavior of participants in the administration of policy.

**GVPT 220 Introduction to Political Behavior (3)** Prerequisite: GVPT100 or GVPT170. Development, concepts and techniques of the behavioral approach to political science and other recent developments in the field.

**GVPT 221 Introduction to Formal Theories of Political Behavior and Politics (3)** Prerequisite: GVPT170. An introduction to the theories of rational choice including theories of negotiation and bargaining, elections and voting in democracies, community organizing and the contrast between the roles and performances of government and market.

**GVPT 227 The Craft of Political Science Research (4)** Three hours of lecture and one hour of laboratory per week. Prerequisite: GVPT100 and GVPT170. Sophomore standing. For BSOS majors only. An introduction to research design and statistics applicable to Political Science.

**GVPT 228 The Craft of Political Science Research (4)** Three hours of lecture and two and a half hours of laboratory per week. Prerequisite: GVPT170 and GVPT100. Sophomore standing. For BSOS majors only. Repeatable to 8 credits if content differs. Formerly GVPT 227. An introduction to research design and statistics applicable to Political Science.

**GVPT 231 Law and Society (3)** A study of the basis of law and its relationship with various contemporary institutions such as the courts, the legal profession, and society at large.

**GVPT 240 Political Ideologies (3)** Prerequisite: GVPT100. A survey and analysis of the leading ideologies of the modern world, including anarchism, communism, socialism, fascism, nationalism, and democracy.

**GVPT 241 The Study of Political Philosophy: Ancient and Modern (3)** Prerequisite: GVPT100. Examines some of the salient continuities and breaks between the ancient and modern traditions in Western political philosophy.

**GVPT 250 Introduction to International Negotiation (3)** Prerequisite: GVPT100. Recommended: GVPT200. Introduction to the complexities of international negotiation and cross-cultural decision-making. Students will apply advanced computer technology in an interactive simulation involving actual negotiations.

**GVPT 260 State and Local Government (3)** Prerequisite: GVPT170. A study of the functioning and problems of state and local government in the United States, with illustrations from Maryland jurisdictions.

**GVPT 270 Introduction to Public Policy (3)** Prerequisite: GVPT170. Complex nature of public policy making at the national level in the United States. Policy making will be described and analyzed in terms of major actors, relationships, and characteristics.

**GVPT 272 The Politics of Race Relations in the United States (3)** Prerequisite: GVPT170. Political dimension of historical and contemporary racial cleavage in the United States with particular emphasis on the post World War II period.

**GVPT 273 Introduction to Environmental Politics (3)** A comprehensive overview of environmental problems, institutions, policies, practices, and remedies found in present-day world society, with special emphasis on environmental matters as objects of American public policy, both domestic and foreign.

**GVPT 280 Comparative Politics and Governments (3)** Prerequisite: GVPT100. An introduction to the comparative study of politics and governance, including the analytical frameworks for studies of politics and governmental institutions and a survey of the major types of European regimes.

**GVPT 282 The Government and Politics of the Third World (3)** Prerequisite: GVPT100. A study of the governmental institutions, processes and problems, and the socio-economic environment which are common to the great majority of the Third World states of Africa. The Middle East, Asia, and Latin America; and in which internal politics develop.

**GVPT 289 Special Topics in Government and Politics (1-6)** Repeatable to 6 credits if content differs. Substantive issues of and theoretical approaches to political phenomenon. Topics and credit vary.

**GVPT 306 Global Ecopolitics (3)** Prerequisite: GVPT200. Consideration of global problems such as the growth controversy, agricultural productivity, pollution, resource depletion, the energy crisis, and the general impact of science and technology on the world ecological, socio-economic, and political system, with particular emphasis on such matters as objects of public policy.

**GVPT 309 Topics in International Relations (3)** Repeatable to 6 credits if content differs. The study of topics in international relations.

**GVPT 319 Topics in Social Advocacy (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Reading, research and discussion of variety of topics related to social advocacy.

**GVPT 321 Intermediate Formal Theories of Political Behavior and Politics (3)** Prerequisite: GVPT221 or permission of department. Analysis of the theory of games, social choice, voting and such notions of social welfare as distributive justice and liberty.

**GVPT 333 Information Technology and Society (3)** Also offered as BSOS333. Credit will be granted for only one of the following: BSOS333 or GVPT333. Multi-disciplinary course utilizes a collaborative research model approach to focus on the influences of information and communication technologies on the way we live, work, learn, and relate to each other and to our community. Given the collaborative nature of the course, students may not drop after the first four weeks of class.

**GVPT 339 Topics in Public Law (3)** Repeatable to 6 credits if content differs. The study of topics in public law.

**GVPT 341 Political Morality and Political Action (3)** Prerequisite: GVPT100. The ethical problems implicit in public actions by individuals, groups, and government. Selected topics in contemporary political theory such as distribution, participation, and equality.

**GVPT 349 Topics in Political Philosophy (3)** Repeatable to 6 credits if content differs. The study of topics in political philosophy.



## 212 Approved Courses

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**GVPT 350 International Relations of the Third World (3)** Prerequisite: GVPT200. A systemic view of relations between the industrialized and third world nations examining specific themes such as the legacy of colonialism, the origins and goals of national liberation movements, efforts to promote regional cooperation, and global movements such as nonalignment and the quest for a new international economic order.

**GVPT 354 Peacebuilding, Post-Conflict Reconstruction, and International (3)** Development Prerequisite: permission of department. Sophomore standing. Also offered as BSOS354. Credit will be granted for only one of the following: BSOS354 or GVPT354. A study of the interrelation between violent conflict and socio-economic development worldwide. Students will become familiar with current strategies for designing and implementing conflict-sensitive development strategies.

**GVPT 355 Capstone I: International Development and Conflict Management (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: Only open to students in IDCM Minor Program. Recommended: GVPT354. This course serves as one-half of the Capstone Session for the Minor in International Development and Conflict Management. It is designed to provide students an introduction to, and a chance to practice with, a core set of practical skills relevant to the fields of international development, humanitarian relief and conflict management. This course must be taken in conjunction with GVPT356.

**GVPT 356 Capstone II: International Development and Conflict Management (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: only open to students in IDCM Minor and GVPT355. Recommended: GVPT354. This course serves one-half of the Capstone Course for the Minor in International Development and Conflict Management. It is designed to provide students an introduction to, and a chance to practice with, a core set of practical skills relevant to the fields of international development, humanitarian relief and conflict management. This course must be taken in conjunction with GVPT355.

**GVPT 359 Topics in Comparative Politics (3)** Repeatable to 6 credits if content differs. The study of topics in comparative politics.

**GVPT 376 Applied Field Research in Government and Politics (3-6)** Prerequisite: GVPT170. Corequisite: GVPT377. Students in this course participate as interns in an agency of government or in some other appropriate political organization. Assignments are arranged to provide students with insights into both theoretical and practical aspects of politics. Under the tutelage of the host agency and an academic adviser, students conduct a major research project of mutual interest to the student and his or her host agency in the field of government and politics.

**GVPT 377 Seminar For Academic Interns (3)** Prerequisite: GVPT 170. Corequisite: GVPT 376. The application of major concepts of political science to the realities of the political process. Readings and discussion attempt to relate the experiences of the academic interns to appropriate literature on the subject of political decision-making.

**GVPT 379 Topics in American Politics (3)** Repeatable to 6 credits if content differs. The study of topics in American politics.

**GVPT 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**GVPT 388 Topical Investigations (1-3)** Prerequisite: one 200-level GVPT course. Repeatable to 6 credits if content differs. Independent research and writing on selected topics in government and politics.

**GVPT 389 Experiential Learning II (3-6)** Prerequisite: permission of department. Junior standing. Repeatable to 6 credits. Experiential credit for working in Government & Politics related internships, research, and teaching opportunities.

**GVPT 396 Introduction to Honors Research (3)** Prerequisite: admission to and permission of GVPT Honors Program. A required course for all honors students designed to emphasize library research, methodology, and writing skills in political science and political philosophy. A written proposal, bibliography and research design for an honors paper required of all students as a final project.

**GVPT 397 Honors Research (3)** Prerequisite: GVPT396 and admission to GVPT honors program. Individual reading and research. Preparation of an original paper.

**GVPT 399 Seminar in Government and Politics (3)** Prerequisite: one 200-level GVPT course. Reading, research, discussion, analysis, and writing in the area of politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics undergraduate majors.

**GVPT 401 Problems of World Politics (3)** Prerequisite: GVPT200. A study of governmental problems of international scope, such as causes of war, problems of neutrality, and propaganda. Students are required to report on readings from current literature.

**GVPT 402 International Law (3)** Prerequisite: GVPT200. A study of the basic character, general principles and specific rules of international law, with emphasis on recent and contemporary trends in the field and its relation to other aspects of international affairs.

**GVPT 403 Law, Morality, War and Terrorism (3)** Prerequisite: GVPT200. An exploration of the political and moral concerns involved in the use or threat of use of force in modern international affairs and diplomacy. Topics of intensive study include, among others, comparative and international laws governing terrorism and counter-terrorism, jus ad bellum, jus en bello, preemptive war, institutional legal processes for promoting the use of and enforcing international conflict resolution and arbitration procedures to prevent or control international violence, and the roles of international courts in trials of war criminals and terrorists.

**GVPT 404 Private International Law (3)** Prerequisite: GVPT200. Recommended: GVPT402. Junior standing. An introduction to private international law, defined as those substantive laws that a nation or nations have applied to private transactions involving transnational relationships. Private international law is often called the "conflict of laws" because it almost always arises to deal with the existence of a number of separate legal systems in the various states, each practicing their own 'municipal law' in ways that invariably raise real and potential conflicts requiring accommodation and cooperation.

**GVPT 405 Defense Policy and Arms Control (3)** Prerequisite: GVPT200. Contemporary issues of military strategy and international security are covered, including: nuclear war, conventional (limited) war, guerrilla insurgency, arms control, disarmament, moderation of war, defense policy processes, and defense economics.

**GVPT 406 International Organizations (3)** Prerequisite: GVPT200. Credit will be granted for only one of the following: GVPT309B or GVPT406. Formerly GVPT 309B. A basic introduction to the full range of international organizations that have come into being over the past century and one-half, including those that aspire to be universal or global, those with a geopolitical or regional focus, and those that address specific structural or functional areas of human endeavor or issue areas.

**GVPT 407 International Political Economy (3)** Prerequisite: GVPT200. Introduces the field of international political economy, which analyzes the ways in which economic and political changes produce both economic and political reactions.

**GVPT 409 Seminar in International Relations and World Politics (3)** Repeatable to 6 credits if content differs. Reading, writing, and research on topics in international relations and world politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

**GVPT 412 Public Financial Administration (3)** A survey of governmental financial procedures, including processes of current and capital budgeting, the administration of public borrowing, the techniques of public purchasing, and the machinery of control through pre-audit and post-audit.

**GVPT 419 Seminar in Public Policy (3)** Repeatable to 6 credits if content differs. Reading, writing, and research on topics in public policy. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

**GVPT 422 Quantitative Political Analysis (3)** Prerequisite: GVPT220. Introduction to quantitative methods of data analysis, including selected statistical methods, block analysis, content analysis, and scale construction.

**GVPT 423 Elections and Electoral Behavior (3)** An examination of various topics relating to elections; the focus includes the legal structure under which elections are conducted, the selection and nomination process, the conduct of election campaigns, and patterns of political participation and voting choice in different types of elections.

**GVPT 424 Topics in Formal Theories of Political Behavior and Politics (3)** Prerequisite: GVPT221 or permission of department. The focus of this course will vary both by its theoretical core and its applications. The theories are likely to be those of games, social choice, and voting. The applications will usually be to problems of distributive and social justice, community organizing, responsive public policy, institutional design, alliance and coalition formation, etc. Some of the topics will involve research projects.

**GVPT 426 Public Opinion (3)** Prerequisite: GVPT220. An examination of public opinion and its effect on political action, with emphasis on opinion formation and measurement, propaganda and pressure groups.

**GVPT 427 Political Sociology (3)** Prerequisite: GVPT220. A study of the societal aspects of political life including selected aspects of the sociology of group formation and group dynamics, political association, community integration and political behavior.

**GVPT 428 Topics in Formal Theories of Political Behavior and Politics (3)** Prerequisite: GVPT221 or permission of department. Repeatable to 6 credits if content differs. An evaluation of theories of political behavior such as game, social choice and voting theory, and their applications to problems of distribution and social justice, community organizing, responsive public policy, institutional design, and alliance and coalition formation.

**GVPT 429 Problems in Political Behavior (3)** Prerequisite: GVPT220. The problem approach to political behavior with emphasis on theoretical and empirical studies on selected aspects of the political process.

**GVPT 431 Introduction to Constitutional Law (3)** A systematic inquiry into the general principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution.

**GVPT 432 Civil Rights and the Constitution (3)** Prerequisite: GVPT231. A study of civil rights in the American constitutional context, emphasizing freedom of religion, freedom of expression, minority discrimination, and the rights of defendants.

**GVPT 433 The Judicial Process (3)** Prerequisite: GVPT231. An examination of judicial organization in the United States at all levels of government, with some emphasis on legal reasoning, legal research and court procedures.

**GVPT 434 Race Relations and Public Law (3)** Prerequisite: GVPT231. A political and legal examination of the constitutionally protected rights affecting racial minorities and of the constitutional power of the federal courts, congress, and the executive to define, protect and extend these rights.

**GVPT 436 The Legal Status of Women (3)** Prerequisite: GVPT231. Also offered as WMST436. Credit will be granted for only one of the following: GVPT436 or WMST436. An examination of judicial interpretation and application of common, statutory, and constitutional law as these affect the status of women in American society.

**GVPT 439 Seminar in Public Law (3)** Repeatable to 6 credits if content differs. Reading, writing, and research on topics in public law. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

**GVPT 441 History of Political Theory: Ancient and Medieval (3)** Prerequisite: GVPT100. A survey of the principal political theories set forth in the works of writers before Machiavelli.

**GVPT 442 History of Political Theory—Medieval to Recent (3)** Prerequisite: GVPT100. A survey of the principal theories set forth in the works of writers from Machiavelli to Nietzsche.

**GVPT 443 Contemporary Political Theory (3)** Prerequisite: GVPT100. A survey of the principal political theories and ideologies set forth in the works of writers from Karl Marx to the present.

**GVPT 444 American Political Theory (3)** Prerequisite: GVPT100 or GVPT170. A study of the development and growth of American political concepts from the Colonial period to the present.

**GVPT 445 Marxism and Postmarxism (3)** Prerequisite: GVPT100. The study of Marxist thought and an assessment of the critical transformations and reassessments of the theory and practice of Marxism.

**GVPT 446 Psychoanalysis and Politics (3)** Prerequisites: GVPT100 and GVPT340. Psychological sources of individual and group behavior as applied to political phenomenon such as voting, war, revolution, and genocide.

**GVPT 447 Islamic Political Philosophy (3)** The writings of one or several authors from the rise of Islamic philosophy until today are examined in order to see how they understand the conflicting claims of revelations and unaided human reason about the best regime, justice, and human virtue.

**GVPT 448 Non-Western Political Thought (3)** Prerequisite: GVPT100; permission of department required for repeat. Examination of works by major authors and general themes of political thought originating in Asia, the Middle East, and Africa. This is not a survey of all non-Western political thought, but a course to be limited by the professor with each offering.

**GVPT 449 Seminar in Political Philosophy (3)** Repeatable to 6 credits if content differs. Reading, writing, and research on topics in political philosophy. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

**GVPT 450 Comparative Study of Foreign Policy Formation (3)** Prerequisite: GVPT200. The opportunity to learn the theoretical underpinnings of foreign policy decision-making and to apply this knowledge in a simulation of a “real world” negotiation arena.

**GVPT 453 Recent East Asian Politics (3)** Prerequisite: GVPT280 or GVPT282. The background and interpretation of recent political events in East Asia and their influence on world politics.

**GVPT 454 Seminar in the International Relations of China (3)** Recommended: GVPT200. Junior standing. Credit will be granted for only one of the following: GVPT409D or GVPT454. Formerly GVPT 409D. Explores the foreign relations behavior of the People’s Republic of China, with focus on the contemporary era.

**GVPT 455 Contemporary Middle Eastern Politics (3)** Prerequisite: GVPT280 or GVPT282. A survey of contemporary development in the international politics of the Middle East, with special emphasis on the role of emerging Middle East nations in world affairs.

**GVPT 457 American Foreign Relations (3)** Prerequisite: GVPT200. The principles and machinery of the conduct of American foreign relations, with emphasis on the Departments of State and Defense, and an analysis of the major foreign policies of the United States.

**GVPT 459 Seminar in Comparative Politics (3)** Repeatable to 6 credits if content differs. Reading, writing, and research on topics in comparative politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

**GVPT 460 Problems in State and Local Government (3)** Prerequisite: GVPT260. A study of the structure, procedures and policies of state and local governments with special emphasis on the state level and on intergovernmental relationships, and with illustrations from Maryland governmental arrangements.

**GVPT 461 Metropolitan Government (3)** An examination of administrative problems relating to public services, planning and coordination in a metropolitan environment.

**GVPT 462 Urban Politics (3)** Prerequisite: GVPT260. Urban political process and institutions considered in the light of changing social and economic conditions.

**GVPT 473 Legislatures and Legislation (3)** Prerequisite: GVPT170. A detailed survey of lawmaking and the legislative process, emphasizing the U.S. Congress and its members.

**GVPT 474 Political Parties (3)** Prerequisite: GVPT170. A descriptive and analytical examination of American political parties, nominations, elections, and political leadership.

**GVPT 475 The Presidency and the Executive Branch (3)** Prerequisite: GVPT170. An examination of the U.S. presidency in historical and contemporary perspective: nomination and electoral politics and the president’s place in policy-making, administration, and public opinion.

**GVPT 476 The Business Government Relationship (3)** Prerequisite: GVPT270. Examines the structures, process, and outcomes of business and government and the politics and products of their cooperative-adversarial relationship in the United States. The design integrates interest group and administrative politics and the public policy process.

**GVPT 479 Seminar in American Politics (3)** Repeatable to 6 credits if content differs. Reading, writing, and research on topics in American politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics majors.

**GVPT 480 Comparative Political Systems (3)** Prerequisite: GVPT280 or GVPT282. A study, along functional lines, of major political institutions, such as legislatures, executives, courts, bureaucracies, public organizations, and political parties.

**GVPT 481 Government and Administration of Russia and the States of the Former Soviet Union (3)** Prerequisite: GVPT280 or GVPT282. A comparative study of the governmental systems and political processes of the states of the former Soviet Union.

**GVPT 482 Government and Politics of Latin America (3)** Prerequisite: GVPT280 or GVPT282. A comparative study of the governmental systems and political processes of the Latin American countries.

**GVPT 483 Government and Politics of Asia (3)** Prerequisite: GVPT280 or GVPT282. A comparative study of governments and politics of Asian countries.

**GVPT 484 Government and Politics of Africa (3)** Prerequisite: GVPT280 or GVPT282. A comparative study of the governmental systems and political processes of the African countries, with special emphasis on the problems of nation-building in emergent countries.

**GVPT 485 Government and Politics of the Middle East (3)** Prerequisite: GVPT280 or GVPT282. A comparative study of the governmental systems and political processes of the Middle Eastern countries, with special emphasis on the problems of nation-building in emergent countries.

**GVPT 486 Comparative Studies in European Politics (3)** Prerequisite: GVPT280 or GVPT282. Comparative studies in the forms of governance, political processes, and public policies in European countries.

**GVPT 487 Government and Politics of China (3)** Recommended: GVPT280. Junior standing. Credit will be granted for only one of the following: GVPT359A or GVPT487. Formerly GVPT 359A. Discussion of major issues in the study of the domestic politics of the People’s Republic of China.

**GVPT 492 The Comparative Politics of Race Relations (3)** Impact of government and politics on race relations in various parts of the world. The origins, problems, and manifestations of such racial policies as segregation, apartheid, integration, assimilation, partnership, and nonracialism will be analyzed.

## HEBR – Hebrew

**HEBR 111 Elementary Hebrew I (6)** Six hours of discussion/recitation per week. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing and reading ability.

**HEBR 112 Elementary Hebrew II (6)** Six hours of discussion/recitation per week. Prerequisite: HEBR111 or equivalent. Continuation of HEBR 111.

**HEBR 211 Intermediate Hebrew I (6)** Six hours of discussion/recitation per week. Prerequisite: HEBR112 or equivalent. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture.

**HEBR 212 Intermediate Hebrew II (6)** Six hours of discussion/recitation per week. Prerequisite: HEBR211 or permission of department. Continuation of HEBR 211.

**HEBR 298 Special Topics in Jewish Studies (3)** Repeatable to 6 credits if content differs.

**HEBR 313 Conversation and Composition I (3)** Prerequisite: HEBR212 or equivalent. A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.

**HEBR 314 Conversation and Composition II (3)** Prerequisite: HEBR313 or equivalent. A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.

**HEBR 381 Advanced Conversation and Composition (3)** Prerequisite: HEBR314 or permission of department. Concentrated practice in spoken and written Hebrew.

**HEBR 382 Readings in Hebrew Newspapers and Periodicals (3)** Prerequisite: HEBR314 or permission of department. Current events, editorials, theatrical reports, book reviews, and scholarly articles. Conducted in Hebrew.

**HEBR 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student’s internship sponsor. Junior standing.

**HEBR 388 Language House Colloquium (1)** Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

**HEBR 498 Special Topics in Hebrew (3)** Repeatable to 6 credits if content differs.

**HEBR 499 Independent Study in Hebrew (1-3)** Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

## HESP – Hearing and Speech Sciences

**HESP 120 Introduction to Linguistics (3)** An introduction to the scientific study of natural language with focus on the basic concepts of phonology, syntax, semantics and pragmatics, with subsequent attention to the applied aspects of linguistic principles.

**HESP 202 Introduction to Hearing and Speech Sciences (3)** An introduction to communication sciences and disorders; a survey of the bases of normal speech, language and hearing ability, major forms of communicative disorder and their treatment.

**HESP 300 Introduction to Psycholinguistics (3)** Prerequisite: HESP202 with a grade of “C” or better, or permission of department. Recommended: HESP120 or LING200. An introduction to current theories of language and an investigation of their relationship to human communication behavior. Survey of the experimental literature relating to this question.

**HESP 305 Anatomy and Physiology of the Speech Mechanism (3)** Prerequisite: HESP202 with a grade of “C” or better, or permission of department. Anatomy, physiology, and neurology of speech mechanism.

**HESP 311 Anatomy, Pathology and Physiology of the Auditory System (3)** Prerequisite: HESP202 with a grade of ‘C’ or better, or permission of department. Gross anatomy of the ear and pathways for transmission of sound energy through the peripheral and central auditory system. Causes, development and effects of pathological conditions contributing to temporary or chronic hearing impairments.

**HESP 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**HESP 388 Undergraduate Research Externship (1-3)** Prerequisite: HESP202, HESP305, HESP300, HESP311 and permission of department. Sophomore standing. Off-campus research internship with departmental affiliates at National Institutes of Health and regional universities. Contact department chairman for openings and descriptions of eligible placements.

**HESP 400 Speech and Language Development in Children (3)** Prerequisite: HESP300 with a grade of “C” or better, or permission of department. Recommended: HESP120 or LING200. Analysis of the normal processes of speech and language development in children.

**HESP 402 Speech Pathology I (3)** Prerequisite: HESP400 with a grade of “C” or better, or permission of department. Etiology, assessment and treatment of language and phonological disorders in children.

**HESP 403 Introduction to Phonetic Science (3)** Prerequisite: HESP305 with a grade of “C” or better, or permission of department. An introduction to physiological, acoustic and perceptual phonetics; broad and narrow phonetic transcription; current models of speech production and perception.

**HESP 404 Speech Pathology II (3)** Prerequisite: permission of department. Etiology, assessment and therapeutic management of phonation, resonance, and fluency disorders in children and adults.

**HESP 406 Speech Pathology III (3)** Prerequisites: {HESP300 and HESP305} with a grade of “C” or better or permission of department. Survey of the dysarthrias and aphasias in adults from an interdisciplinary point of view.

**HESP 407 Bases of Hearing Science (3)** Prerequisite: HESP311 with a grade of ‘C’ or better or permission of department. Fundamentals of hearing, including the physics of sound, anatomy and physiology of peripheral and central auditory nervous system, psychophysical procedures used in measurement of auditory sensation and perception, and topics in psychological acoustics.

**HESP 411 Introduction to Audiology (3)** Prerequisite: HESP311 with a grade of ‘C’ or better, or permission of department. An introduction to the field of audiology. Evaluation and remediation of hearing handicaps.

**HESP 417 Principles and Methods in Speech-Language Pathology and Audiology (3)** Prerequisites: {HESP311, HESP402, and HESP411} with a grade of “C” or better, or permission of department. The principles underlying the treatment of speech, language and hearing disorders in children and adults.

**HESP 418 Clinical Practice in Speech-Language Pathology and Audiology (3)** Prerequisite: HESP417 with a grade of ‘C’ or better, and permission of department. Repeatable to 6 credits. Supervised observation with some direct participation in clinical methods for the treatment of disorders of articulation, fluency, child and adult language; evaluation and habilitation/ rehabilitation of hearing impaired children and adults.

## 214 Approved Courses

**HESP 420 Deafness and Sign Language (3)** Credit will be granted for only one of the following: HESP498A or HESP420. An introduction to American Sign Language and Deaf Culture.

**HESP 422 Neurological Bases of Human Communication (3)** Prerequisite: HESP305 or permission of instructor. Credit will be granted for only one of the following: HESP498 or HESP422. Basic neurology as it pertains to anatomy and physiology substrates of speech and language.

**HESP 423 Phonetics for Teachers of English as a Second Language (3)** Credit will be granted for only one of the following: HESP498P or HESP423. An introduction to the phonetic and phonological system of standard North American English, materials and techniques in teaching pronunciation for teachers of English as a second language.

**HESP 469 Honor Thesis Research (1-3)** Prerequisite: Honor thesis advisor's approval. Repeatable to 6 credits if content differs. Student will develop thesis proposal, conduct research, analyze results, develop and defend final written document.

**HESP 498 Seminar (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics in human communication and its disorders.

**HESP 499 Independent Study (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. A directed study of selected topics pertaining to human communication and its disorders.

### HISP – Historic Preservation

**HISP 200 The Everyday and the American Environment (3)** One hour of lecture and two hours of discussion/recitation per week. An introduction to the theories of the everyday within the context of the American built environment. Focuses primarily on the American experience of underrepresented, minority, and/or immigrant communities; both historical and contemporary. Attempts to challenge what is meant by American in describing the American everyday built environment.

### HIST – History

**HIST 106 American Jewish Experience (3)** Also offered as JWST141. Credit will be granted for only one of the following: HIST106 or JWST141. History of the Jews in America from colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic and political life.

**HIST 110 The Ancient World (3)** Interpretation of select literature and art of the ancient Mediterranean world with a view to illuminating the antecedents of modern culture; religion and myth in the ancient near East; Greek philosophical, scientific, and literary invention; and the Roman tradition in politics and administration.

**HIST 111 The Medieval World (3)** The development of Europe in the Middle Ages; the role of religious values in shaping new social, economic, and political institutions; medieval literature, art and architecture.

**HIST 112 The Rise of the West: 1500 - 1789 (3)** History of early modern Europe. Development of the national consciousness of European peoples. Evolution of state power and bureaucracy, economic institutions, art, literature, science and religion.

**HIST 113 Modern Europe: 1789 - Present (3)** Evolution of modern nation states. Industrial-economic structure and demography. Emergence of modern secular society.

**HIST 120 Islamic Civilization (3)** Introduction to society and culture in the Middle East since the advent of Islam: as a personal and communal faith; as artistic and literary highlights of intellectual and cultural life; and as the interplay between politics and religion under the major Islamic regimes.

**HIST 122 African Civilization to 1800 (3)** History of Africa from earliest times to 1800. Topics of study include origins of African societies, Nile Valley civilization, medieval African states and societies, Islam, oral traditions, African slavery and the slave trade, and early African-European interactions.

**HIST 123 Sub-Saharan Africa Since 1800 (3)** Overviews early mid-19th-century changes in African societies, European conquest and African resistances in the late 19th-century, colonial states and societies, African nationalisms and decolonization and the independence era. Struggles over social, economic, and political changes are emphasized.

**HIST 126 Jewish Civilization (3)** Also offered as JWST121. Credit will be granted for only one of the following: HIST126 or JWST121. Formerly HIST 105. Jewish history, culture, and society from Biblical times to the present.

**HIST 156 History of the United States to 1865 (3)** The United States from colonial times to the end of the Civil War. Establishment and development of American institutions.

**HIST 157 History of the United States Since 1865 (3)** The United States from the end of the Civil War to the present. Economic, social, intellectual, and political developments. Rise of industry and emergence of the United States as a world power.

**HIST 174 Introduction to the History of Science (3)** Formerly HIST 200. Major issues in the development of modern science. Specific examples of discoveries and theories from the viewpoint of theories of historical change, philosophies of science, and interaction of science with philosophy.

**HIST 175 Science and Technology in Western Civilization (3)** Key periods of change in science and technology; the causes and effects of these changes beginning with prehistory and ending with the current century.

**HIST 208 Historical Research and Methods Seminar (3)** For HIST majors only. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: HIST208 or HIST220. Formerly HIST 220. Reading and research skills and methods. Research papers will be based on the topic of the seminar.

### HIST 209 Selected Topics (3)

**HIST 210 Women in America to 1880 (3)** Also offered as WMST210. Credit will be granted for only one of the following: HIST210 or WMST210. An examination of the economic, family and political roles of colonial, slave, immigrant and frontier women in America from pre-industrial colonial period through the early stages of the 19th-century industrialization and urbanization.

**HIST 211 Women in America Since 1880 (3)** Also offered as WMST211. Credit will be granted for only one of the following: HIST211 or WMST211. An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles including those for women's rights, birth control, and civil rights.

**HIST 212 Women in Western Europe, 1750-Present (3)** Also offered as WMST212. Credit will be granted for only one of the following: HIST212 or WMST212. An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

**HIST 213 History of Sexuality in America (3)** Two hours of lecture and one hour of discussion/recitation per week. Credit will be granted for only one of the following: HIST213 or HIST2190. Formerly HIST 2190. Explores the social construction of sexualities from the first colonial settlement to the modern era in the United States. Analyzes the implications of these understandings for power relations in U.S History.

**HIST 216 Introduction to the Study of World Religions (3)** Survey of the history and development of major religions as a significant aspect of social and cultural history. Discusses major scholarly approaches to the study of religion.

### HIST 219 Special Topics in History (3)

**HIST 222 Immigration and Ethnicity in America (3)** Two hours of lecture and one hour of discussion/recitation per week. Also offered as AAST222. Credit will be granted for only one of the following: AAST222, AAST298A, HIST219L or HIST222. Formerly HIST 219L. The history of immigration and the development of diverse populations in the United States are examined. Topics include related political controversies, the social experiences of immigrants, ethnicity, generations, migration, inter-group relations, race and diversity in America culture.

**HIST 224 Modern Military History, 1494-1815 (3)** Survey of the military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the dynastic wars of the Valois and Habsburgs to the national wars of the French Revolution and Empire.

**HIST 225 Modern Military History, 1815-Present (3)** The military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the Congress of Vienna in 1815 to the present.

**HIST 233 Empire! The British Imperial Experience 1558-1997 (3)** Two hours of lecture and one hour of discussion/recitation per week. Credit will be granted for only one of the following: HIST219P or HIST233. Formerly HIST 219P. Britain's empire from the mid-sixteenth century to the late twentieth century, focusing on the encounter between Britain and indigenous peoples. Topics include the origins of British imperialism in Ireland and North America, the slave trade, the East India Company and India, women in Empire, transportation and the making of Australia, sex in empire, missionaries, racial theories and decolonization.

**HIST 234 History of Britain to 1485 (3)** British history from Roman times to the 15th century. The Anglo-Saxon, Scandinavian and Norman invasions; the coming of Christianity; Magna Carta, the development of Parliament, legal institutions and the Common Law; the decline of medieval kingship.

**HIST 235 History of Britain 1461 to 1714 (3)** British history from the War of the Roses to the Hanoverian succession; Yorkist and Tudor society and politics; the Renaissance and Reformation in England, Henry VIII through Elizabeth I; 17th-century crises and revolutions; intellectual and cultural changes; the beginnings of empire; the achievement of political and intellectual order.

**HIST 236 History of Britain 1688 to Present (3)** British history from the Glorious Revolution of 1688 to the present. The revolution of 1688; the structure of 18th-century society and politics; economic and social change in the Industrial Revolution; 19th and 20th-century political and social reform; imperialism; the impact of the First and Second World Wars on British society.

**HIST 237 Russian Civilization (3)** An overview of Russian history stressing the main lines of development of the Russian state and the evolution of Russian culture to the present day.

**HIST 240 Europe in the Twentieth Century (3)** Not open to students who have completed HIST 337. Credit will be granted for only one of the following: HIST 240 or HIST 337. Formerly HIST 337. Political, cultural and economic developments in 20th-century Europe.

**HIST 250 Latin American History I (3)** Latin America from pre-Columbian Indian cultures to the beginnings of the wars for independence (ca. 1810), covering cultural, political, social, and economic developments.

**HIST 251 Latin American History II (3)** The political culture of the republics of Latin America. Themes include nation building, modernization, race relations, economic development, gender, reform and revolution, and relations between the United States and Latin America.

**HIST 254 African-American History to 1865 (3)** Survey of the principal developments in the history and culture of the peoples of African descent in colonial North America and the United States to 1865. Examines the African past, the Atlantic slave trade, variation in slavery, the growth of free black communities, the transformations of families and cultural forms, and patterns of resistance.

**HIST 255 African-American History, 1865 - Present (3)** An introductory course in the African-American experience in the United States from 1865 to present. Topics include the aftermath of the Civil War on US race relations, the rise of segregation, northern migration, World War I and II, Civil Rights Movements, and the Black Power Movement.

**HIST 257 The American West in History and Imagination (3)** Examines the American West from two perspective—as a place of lived experience and as an idea for which much of the United States' national vision has evolved. Emphasizes the experiences of Native American and colonizing Euro-American peoples in regional context, and the interplay between historical realities and national mythologies.

**HIST 265 Social and Cultural History of Modern America (3)** American social history from the Civil War to the present. Examination of the social interactions accompanying the rise of male-dominated, business-oriented urban culture. Concentration on the major social forces clashing and cooperating to produce the modern United States: "business republicanism"; urban workers; intellectuals; rural populists; immigrants (especially Jewish); Black Americans; and struggling women liberators. The crosscurrents of a "free society" wrestling with contradictions of the democratic experiment.

**HIST 266 The United States in World Affairs (3)** A study of the United States as an emerging world power and the American response to changing status in world affairs. Emphasis on the relationship between internal and external development of the nation.

**HIST 275 Law and Constitutionalism in American History (3)** An exploration of the relationship between law and the social and political order between 1750 and 1950. Discussion of important historical issues—religious liberty, economic development, slavery and the Civil War, the political economy of industrialization, the creation of the modern state—from a legal and constitutional perspective.

**HIST 280 Reconstructing the Civilization of Ancient Mesopotamia (3)** Also offered as JWST227. Not open to students who have completed HEBR440. Credit will be granted for only one of the following: HIST280 or JWST227. Formerly HEBR 440. History and culture of Ancient Mesopotamia, as reconstructed from archaeology, language, and texts of the region. Emphasis on culture, literature, religion, and institutions.

## Approved Courses 215

### **HIST 281 The Rabbinic Movement: History and Culture (3)**

Also offered as JWST230. Credit will be granted for only one of the following: HIST281 or JWST230. Introduction to the Rabbinic movement and its history, first to seventh century CE. Survey of the essential texts of ancient Rabbinic literature, both halakhic (legal) and aggadic (non-legal).

### **HIST 282 History of the Jewish People I (3)**

Also offered as JWST234. Credit will be granted for only one of the following: HIST282 or JWST234. Political, economic, social and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Rabbinic Judaism and its subsequent encounter with medieval Christian and Islamic civilizations.

### **HIST 283 History of the Jewish People II (3)**

Also offered as JWST235. Credit will be granted for only one of the following: HIST283 or JWST235. Political, economic, social and cultural development within Jewish history from the end of Middle Ages to the present. Special attention to twentieth century developments including the Nazi holocaust and its aftermath, the Zionist movement and the creation of the State of Israel; rise of the contemporary American Jewish community.

### **HIST 284 East Asian Civilization I (3)**

An interdisciplinary survey of the development of East Asian cultures. An historical approach drawing on all facets of East Asian traditional life, to gain an appreciation of the different and complex cultures of the area.

### **HIST 285 East Asian Civilization II (3)**

A survey of the historical development of modern Asia since 1700. Primarily concerned with the efforts of East Asians to preserve their traditional cultures in the face of Western expansion in the 18th and 19th centuries, and their attempts to survive as nations in the 20th century.

### **HIST 286 The Jew and the City through the Centuries (3)**

Also offered as JWST275. Credit will be granted for only one of the following: HIST286 or JWST275. Jewish urban experience from ancient times to the present. Public space and private space. The city and the sacred. Jewish ghettos and quarters. The struggle over modern Jerusalem.

### **HIST 299 Directed Research (1-3)**

Prerequisite: permission of department. Repeatable to 9 credits if content differs. Closely guided research in primary sources for students currently enrolled in selected 100- or 200-level survey in the Department of History.

### **HIST 305 The Eastern Orthodox Church: Its Cultural History (3)**

A study of the development of the Christian church in the Near East and Eastern Europe from the conversion of Constantine to the present. Emphasis on the relations between church and state in various periods and on the influence of Eastern Christianity on the cultures of traditionally Eastern Orthodox nations.

### **HIST 306 History of Religion in America (3)**

A history of religion, religious movements, and churches in America from the early Colonial period to the present, with special attention to the relation between church and society.

### **HIST 307 The Holocaust of European Jewry (3)**

Also offered as JWST345. Credit will be granted for only one of the following: HIST307 or JWST345. Roots of Nazi Jewish policy in the 1930's and during World War II: the process of destruction and the implementation of the "final solution of the Jewish problem" in Europe, and the responses made by the Jews to their concentration and annihilation.

### **HIST 309 Proseminar in Historical Writing (3)**

For HIST majors only. Discussions and research papers designed to acquaint the student with the methods and problems of research and presentation. Students will be encouraged to examine those phases of history which they regard as their specialties. Restricted to history majors. Non-majors admitted by permission of the department on a space-available basis.

### **HIST 312 Crisis and Change in the United States (3)**

Prerequisite: one course in history. Major historical crises, controversies, and readjustments in the United States.

### **HIST 314 Crisis and Change in the Middle East and Africa (3)**

Prerequisite: one course in history. Major historical crises, controversies, and readjustments in the Middle East and Africa.

### **HIST 319 Special Topics in History (3)**

Repeatable to 6 credits if content differs.

### **HIST 320 Early Christianity: Jesus to Constantine (3)**

Prerequisite: one course in ancient history at the 200 level. Also offered as JWST331. Credit will be granted for only one of the following: HIST320 or JWST331. Social and religious history of early Christianity from its origins in the first century to the reign of Constantine.

### **HIST 321 Biblical History and Culture (3)**

Also offered as JWST324. Not open to students who have completed HEBR333. Credit will be granted for only one of the following: HIST321 or JWST324. Formerly HEBR 333. Study of the political, social and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical texts, archaeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.

### **HIST 324 Classical Greece (3)**

The ancient Greeks from Homer to Socrates, 800-400 B.C. Society and religion of the city-state, the art and literature of Periclean Athens, the Peloponnesian war, and the intellectual circle of Socrates.

### **HIST 325 Alexander the Great and the Hellenistic Age (3)**

History of the Greeks 400-30 B.C.: Alexander and the changes he wrought in the Mediterranean world; the rise of monarchies and leagues; new directions in religion, art, literature, and science; and Hellenization of the Near East, including the Jews.

### **HIST 326 The Roman Republic (3)**

Ancient Rome 753-44 B.C., from its founding to the assassination of Julius Caesar. Rome's conquest of the Mediterranean world, the social and political forces which brought it about, and the consequent transformation and decline of the republic.

### **HIST 327 The Roman Empire (3)**

Roman history from Augustus to Heraclius, 44BC-641AD: The Imperial court and government; the diversity of culture in provinces and cities and the progress of Romanization; Roman religion and its transformation in late antiquity; the Roman army and defense of the frontiers.

### **HIST 330 Europe in the Making: The Early Medieval West (A.D. 300-1000) (3)**

From one empire to another: Rome to Charlemagne. This period is approached as a crucible in which classical, Christian, and Germanic elements merged, yielding new experimental syntheses. This course will deal with issues of authority, cultural trends, and the formation of group solidarity.

### **HIST 331 Europe in the High Middle Ages: 1000-1250 (3)**

Medieval civilization in the 11th through 13th centuries. Emphasis on cultural and political developments of the high Middle Ages with study of the principal sources of medieval thought and learning, art and architecture and political theory. Recommended as a sequel to HIST330.

### **HIST 332 Europe During the Renaissance and Reformation I (3)**

Continental Europe from 1450 to 1650: development and spread of Renaissance culture; growth in the powers of central government; economic expansion and beginnings of overseas colonization; division of Western Christendom into two rival religious camps. Particular emphasis on the Protestant and Catholic reformations and their consequences for Europe's political, social, and cultural development. Renaissance and reformation, 1450-1555. The age of religious wars, 1555-1650.

### **HIST 333 Europe During the Renaissance and Reformation II (3)**

Continuation of HIST 332.

### **HIST 335 Society, Ideas and Culture in Europe, 1715-1815 (3)**

Intellectual, social and cultural movements in Old Regime Europe, during the French Revolution, and in the Napoleonic Period.

### **HIST 336 Europe in the 19th Century, 1815-1919 (3)**

The political, economic, social, and cultural development of Europe from the Congress of Vienna to the First World War.

### **HIST 340 Nationalism and Communism in Eastern Europe (3)**

National states, ethnic conflict and communist parties across the 20th century, including the collapse of the Soviet bloc regimes and the break-up of Yugoslavia.

### **HIST 341 History of Anti-Semitism (3)**

The historical development of anti-Semitism in its European context. Anti-Semitism both as a set of ideas and as a political movement from the ancient era to the present, with emphasis on the modern era.

### **HIST 342 Fascism: Theory and Practice (3)**

The origins and history of fascism in Europe, 1918-1945. Emphasis divided between the industrialized (or industrializing) nations and the largely agrarian countries of Europe. The rise of fascism in other parts of the world.

### **HIST 344 Revolutionary Russia (3)**

An exploration of the roots, dynamics and consequences of the Russian Revolution of 1917. Major interpretations of the fall of tsarism, social and political forces at play, Leninism and Stalinism.

### **HIST 346 Social and Cultural History of Europe (3)**

An exploration of social structure, life styles, rituals, symbols, and myths of the peoples of Europe.

### **HIST 351 Social History of Washington, D.C. (3)**

Development of the "resident city" of Washington: neighborhoods, schools, places of worship, economic establishments, and local population groups.

### **HIST 352 America in the Colonial Era, 1600-1763 (3)**

The founding of the English colonies in America and their European backgrounds, the reasons for the instability of colonial society to 1689 and the emergence of stable societies after 1689; the development of colonial regionalism, political institutions, social divisions, the economy, religion, education, urban and frontier problems in the eighteenth century.

### **HIST 353 America in the Revolutionary Era, 1763-1815 (3)**

Credit will be granted for only one of the following: HIST353 or HIST361. The background and course of the American Revolution and early nationhood through the War of 1812. Emphasis on how the Revolution shaped American political and social development, the creation of a new government under the Constitution, and the challenges facing the new nation.

### **HIST 354 Ante-Bellum America 1815-1861 (3)**

Recommended: HIST156 or HIST210. Credit will be granted for only one of the following: HIST354 or HIST363. Traces how the strong nationalism after the War of 1812 transformed into the sectionalism that led to Civil War. The course concentrates on the controversies over slavery and other issues contributing to North- South antagonism, including Jacksonian democracy, capitalism, racism, immigration, manifest destiny and religious, social, and intellectual movements, each of which produced its own social tendencies and tensions.

### **HIST 355 Civil War and the Rise of Industrialization, 1860-1900 (3)**

Credit will be granted for only one of the following: HIST355 or HIST364. Civil War, sectional and class conflicts and their impact on American life and institutions from the beginning of the Civil War through the Gilded Age; social, economic, and political reconstruction of the Union; industrialization, urbanization, and technological changes.

### **HIST 356 Emergence of Modern America, 1900-1945 (3)**

Recommended: HIST157 or HIST211. Credit will be granted for only one of the following: HIST356, HIST365 or HIST366. The emergence of modern institutions and identities, 1900-1945. These institutions may include corporate enterprises and the welfare state; identities include homosexuality, the New Woman and the New Negro.

### **HIST 357 Recent America: 1945-Present (3)**

Recommended: HIST157 or HIST356. Credit will be granted for only one of the following: HIST357 or HIST367. American history from the inauguration of Harry S. Truman to the present with emphasis upon politics and foreign relations, but with consideration of special topics such as radicalism, conservatism, and labor.

### **HIST 370 Jews and Judaism in Antiquity I: Sixth Century BCE through the (3)**

First Century CE Also offered as JWST325. Credit will be granted for only one of the following: HIST370 or JWST325. Political, social, and religious history of the Jews from the Persian period to the Judean revolt of 66-70 CE. Special attention to the rise of sectarian and revolutionary movements.

### **HIST 371 Jews and Judaism in Antiquity II: First through Seventh Century (3)**

Recommended: HIST370. Also offered as JWST326. Credit will be granted for only one of the following: HIST371 or JWST326. Political, social, and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformation of Judaism under late Roman Christianity, and the rise of the Rabbinic movement.

### **HIST 374 Modern Jewish History I: The Road to Emancipation, 1650-1870 (3)**

Also offered as JWST343. Credit will be granted for only one of the following: HIST374 or JWST343. Social, political, economic, and cultural change in the Jewish world since 1650. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 17th to the 20th centuries.

### **HIST 375 Modern Jewish History II: World Jewry Since 1870 (3)**

Also offered as JWST344. Credit will be granted for only one of the following: HIST375 or JWST344. Continuation of HIST374.

### **HIST 376 History of Zionism and the State of Israel (3)**

Also offered as JWST342. Credit will be granted for only one of the following: HIST376 or JWST342. Ideological and political factors leading to the establishment of a secular Jewish state in 1948; Zionist thought of Herzl, Ahad Ha-am, the socialist and religious Zionists, and the revisionists; diplomatic activities; Arab-Israel conflict; post-1948 Israeli society.

### **HIST 380 American Relations With China and Japan, 1740-Present (3)**

American political, economic, and cultural relations with China and Japan from the American colonial era to the present. Diplomacy and power politics; Christian missions; immigration and exclusion; overseas education; art and literature; trade, investment, technology.

### **HIST 386 Experiential Learning (3-6)**

Prerequisite: permission of department. Junior standing. The History Department's Internship program. Pre-professional experience in historical research, analysis and writing in a variety of work settings.

## 216 Approved Courses

**HIST 392 History of the Contemporary Middle East (3)** Modernization, westernization and secularization in a traditional society; the rise of sovereign nation-states; shifting political and economic power groupings within a regional and global context.

**HIST 395 Honors Colloquium I (3)** Prerequisite: permission of department. For HIST majors only. History and theory: the conceptual underpinnings of the historical discipline. Students evaluate several contrasting theories of history. Prerequisite for other honors courses.

**HIST 396 Honors Colloquium II (3)** Prerequisite: HIST395 or permission of department. For HIST majors only. Uses a seminar approach to examine a major problem of historical interpretation across two or more diverse cultures in different periods. Topics vary and include: religion and society, the city in history, gender, slavery and emancipation, and modernization.

**HIST 398 Honors Thesis (3)**

**HIST 401 The Origins of Modern Science from Aristotle to Newton (3)** Prerequisite: Any course that satisfies CORE Physical Sciences requirement. Introduction to the history of physical science, focusing on the transformation in our understanding of the world during the 16th and 17th centuries. Ancient and medieval conceptions of the universe, physical theories, and mathematical sciences in Europe, Asia, and Middle East, the transition from geocentric to heliocentric astronomy through the work of Copernicus, Kepler, and Galileo, interactions between science and religion as exemplified by the Trial of Galileo, new laws of mechanics, Newton's discoveries and theories, and the establishment of the Newtonian worldview.

**HIST 402 The Development of Modern Physical Science: From Newton to Einstein (3)** Prerequisites: MATH110; and PHYS112 or PHYS117 or equivalent. The history of physics in the 18th and 19th centuries, including connections with mathematics, technology, chemistry and planetary science. Emphasis on internal technical developments in physical theory, with discussion of experimental, philosophical and sociological aspects. This is the second part of a three-semester sequence (HIST401, HIST402, PHYS490); each part may be taken independently of the others.

**HIST 404 History of Modern Biology (3)** The internal development of biology in the 19th and 20th-centuries, including evolution, cell theory, heredity and development, spontaneous generation, and mechanism-vitalism controversies. The philosophical aspects of the development of scientific knowledge and the interaction of biology with chemistry and physics.

**HIST 405 Environmental History (3)** An introduction to the key issues and methods of environmental history. The scope of the subject is discussed, as well as its relationship with other disciplines, such as ecology, anthropology, and geography. A primary focus is environmental change in history with emphasis on the American experience.

**HIST 406 History of Technology (3)** Not open to students who have completed HIST407 prior to Fall Semester, 1989. The changing character of technology in modern history, beginning with the Middle Ages. Concentrates on the Industrial Revolution and its aftermath, the nature of technological knowledge and the sources of technological change.

**HIST 407 Technology and Social Change in History (3)** Students with HIST407 prior to Fall Semester 1989 must have permission of department to enroll in this course. Social consequences of technological innovations and the ways in which societies have coped with new technologies.

**HIST 408 Senior Seminar (3)** For HIST majors only. Repeatable to 6 credits if content differs. A capstone course for history majors, designed to increase historical knowledge and the ability to analyze texts and arguments. Topics will focus on the literature of a particular field and primary-source research.

**HIST 410 Introduction to Archives I (3)** Prerequisite: permission of department. Corequisite: HIST411. History of the basic intellectual problems relating to archives and manuscript repositories; emphasis on problems of selection, access, preservation, inventorying and editing as well as the variety of institutions housing documents.

**HIST 411 Introduction to Archives II (3)** Prerequisite: permission of department. Corequisite: HIST410. Practical experience through placement in cooperating archives or manuscript repositories in the Baltimore/Annapolis /Washington, D.C. areas. Assignments to specific projects based on intellectual interest of students.

**HIST 414 History of European Ideas I (3)** Review of the basic Western intellectual traditions as a heritage from the ancient world. Selected important currents of thought from the scientific revolution of the 16th and 17th centuries to the end of the 18th century.

**HIST 415 History of European Ideas II (3)** A continuation of HIST414 emphasizing 19th and 20th-century thought.

**HIST 418 Jews and Judaism: Selected Historical Topics (3)** Repeatable to 6 credits if content differs.

**HIST 419 Special Topics in History (3)** Repeatable to 9 credits if content differs.

**HIST 422 Byzantine Empire I (3)** The Eastern Roman Empire from Constantine the Great to the crisis of the 9th-century. The development of the late Roman state into the Medieval Christian Byzantine Empire and the evolution of a distinctive Byzantine culture.

**HIST 423 Byzantine Empire II (3)** The Byzantine Empire from the Macedonian renaissance to the conquest of Constantinople by the Ottomans in 1453: the Byzantine Empire at its height, the Crusades, Byzantium as a minor power, and its contributions to the Renaissance and the cultures of Russia and the Balkans.

**HIST 424 Early Russia (3)** A study of the evolution of the East Slavic peoples from prehistory to the time of Peter the Great. Major segments are devoted to the Kievan Rus state, Mongol rule, Muscovite autocracy, the absorption of Ukraine, and the advent of Westernization.

**HIST 425 Imperial Russia (3)** The rise and fall of the Russian Empire, Peter the Great to the collapse of tsarism in revolution. Emphasis on the evolution of autocracy, social groups, national identities, and cultural change.

**HIST 426 Age of Industry: Britain 1760 to 1914 (3)** An economic, social, political and cultural analysis of Britain in the age of its industrial supremacy. The nature of the first industrial revolution; the emergence of modern social classes; the cultural impact of industrialization; politics and society in the early and mid-19th-century; Victorianism and its critics; imperialism and politics; high and low culture; the rise of labor; social and political tensions 1910-1914.

**HIST 427 Age of Decline: Britain 1914 to Present (3)** British society since the First World War. The social, cultural, economic and political impact of the First World War; labor and politics in the 1920s and 1930s; the inter-war Depression, appeasement and foreign policy; the social impact of the Second World War; the welfare state and nationalization of industry; the dissolution of Empire; the emergence of a consumer society; social criticism in the 1950s; the economic and political problems of the 1960s and 1970s.

**HIST 430 Tudor England (3)** An examination of the political, religious and social forces in English life, 1485-1603, with special emphasis on Tudor government, the English reformation and the Elizabethan era.

**HIST 431 Stuart England (3)** An examination of the political, religious and social forces in English life, 1603-1714, with special emphasis on Puritanism and the English revolutions.

**HIST 435 Constitutional and Legal History of Britain (3)** Not open to students who have completed HIST 434. Constitutional and legal developments in England from the Anglo-Saxon settlement to the present day. The rise and decline of monarchical government, the development of parliament, and the emergence of systematized, democratic government. The origins of the common law and legal profession, the development of a centralized judicial system, and the emergence of modern trial procedures. Survey knowledge of English history desirable.

**HIST 436 French Revolution and Napoleon (3)** The causes and course of the French Revolution with emphasis on the struggle among elites, popular intervention, the spread of counterrevolution, the Terror as repression and popular government, the near collapse of the Republic, and the establishment and defeat of dictatorship.

**HIST 437 Modern France from Napoleon to DeGaulle (3)** The changing political and cultural values of French society in response to recurrent crises throughout the 19th and 20th centuries. Students should have had some previous survey of either Western civilization or European history.

**HIST 440 Germany in the Nineteenth Century, 1815-1914 (3)** Examines the social, economic, cultural, and political development of the major German states before 1871 and of Germany, excluding Austria, from 1871 to 1914.

**HIST 441 Germany in the Twentieth Century: 1914-Present (3)** Germany's aims and policies during World War I, its condition and policies in the inter-war period, the rise of National Socialism, World War II, and post-war Germany.

**HIST 442 Twentieth-Century Russia (3)** Russia and the Soviet Union from the fall of the tsars to the post-communist present. Impact of Leninism, Stalinism and Soviet Communism on state, society, culture and nationality.

**HIST 443 Modern Balkan History (3)** A political, socioeconomic, and cultural history of Yugoslavia, Bulgaria, Romania, Greece, and Albania from the breakdown of Ottoman domination to the present. Emphasis is on movements for national liberation during the 19th-century and on approaches to modernization in the 20th-century.

**HIST 445 Twentieth-Century European Diplomatic History (3)** The development and execution of European diplomacy from the outbreak of World War I to the conclusion of World War II, concentrating on Central and Western Europe.

**HIST 450 Economic History of the United States to 1865 (3)** The development of the American economy from Columbus through the Civil War.

**HIST 451 Economic History of the United States After 1865 (3)** The evolution of the U.S. economy from the end of the Civil War to the present; emphasis on macroeconomic policy making and relations among business, government and organized labor.

**HIST 452 Diplomatic History of the United States to 1914 (3)** American foreign relations from the American Revolution to the beginning of World War I. International developments and domestic influences that contributed to American expansion in world affairs. Analyses of significant individuals active in American diplomacy and foreign policy.

**HIST 453 Diplomatic History of the United States from 1914 (3)** American foreign relations in the 20th-century. World War I, the Great Depression, World War II, the Cold War, the Korean War, and Vietnam. A continuation of HIST452.

**HIST 454 Constitutional History of the United States: From Colonial Origins to 1860 (3)** The interaction of government, law, and politics in the constitutional system. The nature and purpose of constitutions and constitutionalism; the relationship between the constitution and social forces and influences, the way in which constitutional principles, rules, ideas, and institutions affect events and are in turn affected by events. The origins of American politics and constitutionalism through the constitutional convention of 1787. Major constitutional problems such as the origins of judicial review, democratization of government, slavery in the territories and political system as a whole.

**HIST 455 Constitutional History of the United States: Since 1860 (3)** American public law and government, with emphasis on the interaction of government, law, and politics. Emphasis on the political-constitutional system as a whole, rather than simply the development of constitutional law by the Supreme Court. Major crises in American government and politics such as Civil War, Reconstruction, the 1890s, the New Deal era, the civil disorders of the 1960s.

**HIST 456 History of American Culture and Ideas to 1865 (3)** The culture and ideas that have shaped American society and character from the first settlements to the Civil War.

**HIST 457 History of American Culture and Ideas Since 1865 (3)** A continuation of HIST456, from the Civil War to the present.

**HIST 460 History of Labor in the United States (3)** The American working class in terms of its composition; its myths and utopias; its social conditions; and its impact on American institutions.

**HIST 461 Blacks in American Life: 1865 to Present (3)** The role of the Black in America since slavery, with emphasis on 20th-century developments: migration from farm to city; growth of the civil rights movement; the race question as a national problem.

**HIST 462 The United States Civil War (3)** Causes of the Civil War; sectional politics and secession; resources and strategy of the Confederacy and the Union; changing character of the war; emancipation and its consequences: economic, social and political conditions on the home front; and the wartime origins of Reconstruction. Not a military history course; little attention to the tactics of particular battles.

**HIST 463 History of the Old South (3)** The golden age of the Chesapeake, the institution of slavery, the frontier South, the antebellum plantation society, the development of regional identity and the experiment in independence.

**HIST 464 The North Atlantic World in the Early Modern Period, 1600-1800 (3)** Not open to students who have completed HIST260. The American Colonies and the new American nation: their European heritage and influences.

**HIST 471 History of Brazil (3)** The history of Brazil with emphasis on the national period.

**HIST 472 History of the Argentine Republic (3)** Concentration upon the recent history of Argentina with emphasis upon the social and economic development of a Third World nation.

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**HIST 473 History of the Caribbean (3)** Offers a concise introduction to the history of the Caribbean regions from the Columbian voyages to the 20th-century. Special emphasis is given to the dynamics of local social and cultural formations within the framework of the political and economic history of the Atlantic world.

**HIST 474 History of Mexico and Central America I (3)** History of Mexico and Central America, beginning with the Pre-Spanish Indian cultures and continuing through European contact, conquest, and colonial dominance, down to the beginning of the Mexican War for Independence in 1810.

**HIST 475 History of Mexico and Central America II (3)** A continuation of HIST474 with emphasis on the political development of the Mexican nation.

**HIST 480 History of Traditional China (3)** China from earliest times to 1644 A.D. Emphasis on the development of traditional Chinese culture, society, and government.

**HIST 481 A History of Modern China (3)** Modern China from 1644 to the People's Republic of China. Emphasis on the coming of the West to China and the various stages of the Chinese reaction.

**HIST 482 History of Japan to 1800 (3)** Traditional Japanese civilization from the age of Shinto mythology and introduction of continental learning down to the rule of military families, the transition to a money economy, and the creation of a townsmen's culture. A survey of political, economic, religious, and cultural history.

**HIST 483 History of Japan Since 1800 (3)** Japan's renewed contact with the Western world and emergence as a modern state, industrial society, and world power, 1800-1931; and Japan's road to war, occupation, and recovery, 1931 to the present.

**HIST 484 Chinese Cultural Revolution (3)** Recommended: HIST285 or HIST481. Credit will be granted for only one of the following: HIST419G or HIST484. Formerly HIST 419G. Examines the cultural origins, experience, and results of the Cultural Revolution in China.

**HIST 487 History of Soviet Foreign Relations, 1917 to Present (3)** A history of Soviet foreign relations, including both conventional diplomacy and the spread of international proletarianism from the October Revolution to the present.

**HIST 491 History of the Ottoman Empire (3)** Survey of the Ottoman Turkish Empire from 1300 A.D. to its collapse during World War I. Emphasis on the empire's social and political institutions and its expansion into Europe, the Arab East and North Africa.

**HIST 492 Women and Society in the Middle East (3)** Recommended: prior coursework in Middle East studies or gender studies. Also offered as WMST456. Credit will be granted for only one of the following: HIST492 or WMST456. Examines the customs, values and institutions that have shaped women's experience in the Middle East in the past and in the contemporary Middle East.

**HIST 493 Victorian Women in England, France, and the United States (3)** Also offered as WMST453. Credit will be granted for only one of the following: HIST493 or WMST453. Examines the lives of middle and upper-class women in England, France, and the United States during the Victorian era. Topics include gender roles, work, domesticity, marriage, sexuality, double standards, and women's rights.

**HIST 494 Women in Africa (3)** The place of women in African societies: the role and function of families; institutions such as marriage, birthing, and child-rearing; ritual markers in women's lives; women in the work place; women's associations; women's health issues; measures designed to control women's behavior; women and development.

**HIST 495 Women in Medieval Culture and Society (3)** Also offered as WMST455. Credit will be granted for only one of the following: HIST495 or WMST455. Medieval women's identity and cultural roles: the condition, rank and rights of medieval women; their access to power; a study of women's writings and the constraints of social constructs upon the female authorial voice; and contemporary assumptions about women.

**HIST 496 Africa Since Independence (3)** Analysis of socio-political and econo-political changes in Africa since approximately 1960; development of class structures, the role of the military, personal rule and the patrimonial state; decline of party politics and participatory politics. Discussion of changes in economic policies, policies with respect to rural communities, and their relationship to the state and decision-making.

**HIST 497 Islam in Africa (3)** The introduction of Muslims and Islam into Africa from approximately the 8th to 19th-century. Impact of Islam on a regional-cultural basis, as well as Islam in state development and in political theory. The impact of Islam on social structures, e.g., domestic African slavery. Role of

Islam in resistance movements against imperialism and colonization, and the place of Islam in independence and post-independence movements.

**HIST 499 Independent Study (1-3)** Prerequisite: permission of department. Repeatable to 6 credits.

### HLHP – Health and Human Performance

**HLHP 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing. Formerly PERH 386.

**HLHP 488 Children's Health and Development Clinic (1-4)** Prerequisite: permission of department. Repeatable to 4 credits. An opportunity to acquire training and experience in a therapeutically oriented physical education-recreation program for children referred by various education, special education, medical or psychiatric groups.

### HLTH – Health

**HLTH 105 Science and Theory of Health (2)** The scientific and philosophical bases for various theories of health, including health, wellness, individual control and limitations of health status, and holistic health.

**HLTH 106 Drug Use and Abuse (3)** An interdisciplinary analysis of contemporary drug issues and problems. The course will examine physiological, psychological, social, philosophical, historical, legal and health aspects of drug use and abuse. Special attention will be focused on those general motivations for drug use that attend life on the college campus.

**HLTH 130 Introduction to Public and Community Health (3)** Not open to non-majors with more than 60 credits. Not open to students who have completed HLTH105. Credit will be granted for only one of the following: HLTH105 or HLTH130. Formerly HLTH 105. An introduction to the theory and practice of public and community health. The influence of public health professionals on the past, present, and future health status of society through the examination of critical health issues will be described. Programming models, theories and policy development are included.

**HLTH 140 Personal and Community Health (3)** Meaning and significance of physical, mental and social health as related to the individual and to society; important phases of national health problems; constructive methods of promoting health of the individual and the community.

**HLTH 150 First Aid and Emergency Medical Services (2)** Lecture, discussion and practice to train students in cardiopulmonary resuscitation (CPR) for adults, children and infants. Students will also learn first aid skills related to hemorrhage control, care for musculoskeletal injuries and care for sudden illnesses. Upon successful completion of the course, students will be awarded American Red Cross CPR and first aid certification.

**HLTH 230 Introduction to Health Behavior (3)** Psychological, social psychological, and sociological approaches to the following health areas: development of health attitudes and behavior, patient-provider interaction and the organization of health care.

**HLTH 285 Controlling Stress and Tension (3)** Health problems related to stress and tension. Analysis of causative psychosocial stressors and intervening physiological mechanisms. Emphasis on prevention and control of stress through techniques such as biofeedback, meditation and neuromuscular relaxation.

**HLTH 289 Topical Investigations (1-3)** Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

**HLTH 371 Communicating Safety and Health (3)** The communication and evaluation of safety and health information. Emphasis on various types of communications and recipient factors which contribute to their success or failure.

**HLTH 377 Human Sexuality (3)** The biological and developmental aspects of human sexuality; the psychological and emotional aspects of sexual behavior; sexual identity; the historical, cultural, social, linguistic, legal and moral forces affecting sexual issues; the importance of communication, disclosure and intimacy in interpersonal relationships; and research trends in the area of human sexuality.

**HLTH 380 Peer Education: Alcohol and Other Drugs (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH106; and permission of department. Peer training dealing with drug information and abuse to facilitate workshops in various outreach locations (dorms, Greek system, classrooms).

**HLTH 381 Peer Education: Stress Management (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH285; and permission of department. Peer training in different forms of stress management to facilitate workshops in various outreach locations (dorms, Greek system, classes).

**HLTH 382 Peer Education: Sexuality and Communication (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH377; and permission of department. Peer training in communication and issues of sexuality to facilitate workshops in various outreach locations (dorms, Greek system, classes).

**HLTH 383 Peer Education: Reproductive Health (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH377; and permission of department. Peer training in methods of birth control, sexually transmitted disease and AIDS education to facilitate workshops in the student Health Center and various outreach locations (dorms, Greek system, classes).

**HLTH 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**HLTH 389 Topical Investigations (1-3)** Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

**HLTH 391 Principles of Community Health I (3)** Prerequisites: HLTH140 and HLTH230. For HLTH majors only. Broad overview of community health. Health promotion, consumer health, public health, school health, environmental health, preventive medicine, human biology and the health care system are examined. Each area's contribution to community health is discussed.

**HLTH 400 Service/Learning in Health Education (3)** Prerequisite: permission of department; For HLTH ED majors only. Junior standing. Application of health education knowledge and skills to serve health education needs in the community. Combines community service with preparation and reflection.

**HLTH 420 Methods and Materials in Health Education (3)** Prerequisites: HLTH105 or HLTH140. The purpose of this course is to present the interrelationships of curriculum planning, methodology and the selection and use of teaching aids and materials. Special problems associated with health teaching are discussed. Students become familiar with a variety of resources as well as with planning for and presenting demonstration lessons.

**HLTH 430 Health Education in the Workplace (3)** A survey of the role of health education in work settings. Examination of occupational stress, the health effects of shift work, women's health in the workplace, health education approaches to informing workers and management, and health promotion programs in the workplace.

**HLTH 437 Consumer Behavior (3)** Prerequisites: PSYC100; and SOCY100. An application of the behavioral sciences to a study of consumer behavior. Current theories, models and empirical research findings are explored.

**HLTH 460 Minority Health (2-6)** Prerequisite: HLTH140 or HLTH230 or permission of department. Health concerns of U.S. ethnic minority groups and factors placing them at elevated risk for disease and injury. Health education concepts and strategies to reduce disparities between their health status and the health status of the general population.

**HLTH 471 Women's Health (3)** Also offered as WMST471. Credit will be granted for only one of the following: HLT471 or WMST471. The historical, physiological, psychological, and sociological mechanisms which contribute to women's health. Topics will include gynecological concerns and reproductive health; nutrition, exercise; violence; substance use/abuse; and the health of special populations.

**HLTH 476 Death Education (3)** Examination of the genesis and development of present day death attitudes and behavior by use of a multidisciplinary life cycle approach.

**HLTH 485 Ways of Knowing About Human Stress and Tension (3)** Prerequisite: HLTH285. Not open to students who have completed HLTH498T. A critical examination of propositions describing the nature of the human condition and the consequences of the propositions on human stress and tension.

**HLTH 486 Stress and the Healthy Mind (3)** Prerequisite: HLTH285. For HLTH majors only. Explores diverse mental health and related behavioral skills as needed by health educators that: facilitate coping with stress, are preventive in nature; and are suitable for learning by healthy individuals in educational settings.

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**HLTH 487 Adult Health and Developmental Program (3)** Application of gerontological health and well-being theory in one-to-one interaction with older institutionalized and non-institutionalized adults. Students work as “coaches” with adults, while learning about the historical and cultural aspects of aging and old age, and their implications for assisting elderly adults.

**HLTH 489 Field Laboratory Projects and Workshop (1-6)** Note: the maximum total number of credits that may be earned toward any degree in kinesiology or health education under KNES or HLTH489 is six. A course designed to meet the needs of persons in the field with respect to workshop and research projects in special areas of knowledge not covered by regularly structured courses.

**HLTH 490 Principles of Community Health II (3)** Two hours of lecture and four hours of laboratory per week. Prerequisite: HLTH391. Students will be involved in the applied aspects of community health education. They will work with specific local community groups, planning, developing, implementing and evaluating a community health project. Health agencies and community health marketing techniques will be investigated.

**HLTH 491 Community Health Internship (12)** 40 hours of laboratory per week. For community health majors only. Prerequisite: HLTH490. Integrating theory with practice in a community health setting.

**HLTH 498 Special Topics in Health (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Topics of special interest in areas not covered by regularly scheduled courses.

### HONR – Honors

**HONR 100 Honors Colloquium (1)** Prerequisite: permission of University Honors Program. Attendance at various additional activities and events is required. Reading and discussion on the personal and social value of higher education; development of a coherent general education program; exploration of the educational and cultural resources of the campus and metropolitan area; participation in a community service project; and other activities designed to broaden students' conception of what it means to be an educated person.

**HONR 149 Honors Colloquium (3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A colloquium on a variety of topics.

**HONR 168 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 169 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 200 Honors Research Colloquium (1)** Prerequisite: permission of university honors program. Recommended for students in their second semester. All others should meet with the Honors Advisor. Introduction to scholarly research through readings and meetings with faculty from various disciplines; exploration of research methods and some of the problems encountered in research; discussion of the creative process; attendance at scholarly lectures; and other activities designed to prepare students to enter college or departmental honors programs.

**HONR 201 Beginning Research (1-3)** Prerequisite: permission of university honors program. Involves preliminary investigation, under individual faculty guidance, of a research question chosen by the student.

**HONR 208 Honors Seminar (1-3)** Prerequisite: permission of the university honors program. Repeatable to 9 credits if content differs.

**HONR 209 Honors Seminar (1-3)** Prerequisite: permission of university honors program. Repeatable to 9 credits if content differs.

**HONR 216 In Search of Ancient Astronomies (3)** For HONR majors only. Not open to students who have completed HONR218A. Credit will be granted for only one of the following: HONR216 or HONR218A. Formerly HONR 218A. An introduction to Archaeoastronomy, the interdisciplinary study of the astronomical practices, celestial lore, mythologies, religions, and cosmologies of ancient and indigenous peoples.

**HONR 217 Life, The Multiverse and Everything: Developing an Individual (3)** Cosmvision In this Honors seminar, students pursue personal cosmologies in light of our contemporary core “Western” scientific world-view and a selection of other ancient and indigenous cosmographies for comparison including those of Mesoamerica, the Inca, the Egyptians or the Chinese.

**HONR 218 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 219 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 228 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 229 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 238 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 239 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 248 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 249 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 258 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 259 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 267 Knowledge Across Disciplines (3)** Prerequisite: University Honors students. Interdisciplinary seminar that explores knowledge in the context of contemporary experience, using key texts and discoveries from biology, mathematics, physics, political theory, humanities and the creative arts.

**HONR 268 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 269 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 278 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 279 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 288 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 289 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 298 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 299 Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs.

**HONR 318 Advanced Honors Seminar (3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

**HONR 328 Advanced Honors Seminar (3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester.

**HONR 338 Advanced Honors Seminar (3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester.

**HONR 348 Advanced Honors Seminar (1-3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester.

**HONR 349 Honors Colloquium (1-3)** Prerequisite: University or departmental Honors student or permission of instructor and the Director of University Honors. Repeatable to 3 credits if content differs. A series of seminars, often interdisciplinary and sometimes team taught. Subjects may vary.

**HONR 358 Honors Practicum (3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. Formerly HONR 379. For student section leaders of HONR100 or HONR200.

**HONR 359 Honors Workshop (1-6)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. Honors workshops are small seminar classes which concentrate on skill development.

**HONR 368 Advanced Honors Seminar (3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes team-taught. The subjects will vary from semester to semester.

**HONR 378 Advanced Honors Seminar (3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. A series of seminars, often interdisciplinary in character and sometimes team-taught. The subjects will vary from semester to semester.

**HONR 379 Honors Independent Study (1-6)** Prerequisite: permission of University Honors Program. Repeatable to 6 credits if content differs. Involves reading or research directed by individual faculty, especially in areas outside of the student's major. Open only to University honors students.

**HONR 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**HONR 388 Honors Thesis or Project (3-6)** Repeatable to 6 credits if content differs. Formerly HONR 370.

**HONR 389 Guided Honors Teaching (3)** Prerequisite: permission of University Honors Program. Repeatable to 9 credits if content differs. For HONR100 and HONR200 section leaders. Guided teaching experience for selected students in the University Honors Program.

### ITAL – Italian

**ITAL 101 Elementary Italian I (4)** Credit will be granted for only one of the following: ITAL101 or ITAL121. Introduction to basic grammar and vocabulary; written and oral work.

**ITAL 102 Elementary Italian II (4)** Prerequisite: ITAL101 or permission of department. Continuation of study of basic grammar; written and oral work, with increased emphasis on spoken Italian.

**ITAL 103 Intensive Elementary Italian (4)** Three hours of lecture and one hour of laboratory per week. Not open to students who have completed More than two years of high school Italian, or to fluent/native speakers of Italian. Credit will be granted for only one of the following: ITAL103 or ITAL121. Covers speaking, reading, writing, listening, and culture of Italian-speaking world.

**ITAL 121 Accelerated Italian I (3)** Credit will be granted for only one of the following: ITAL103 or ITAL121. An intensive beginning course in Italian language skills: guided practice in reading, writing, understanding and conversation, to enable the student to move more quickly to advanced courses. Restricted to students already having a good background in at least one other foreign language. With ITAL122, may be used to satisfy language requirement.

**ITAL 122 Accelerated Italian II (3)** Prerequisite: ITAL121 or permission of department. Credit will be granted for only one of the following: ITAL203 or ITAL122. Continuation of ITAL121. Completion of accelerated cycle. May be used to satisfy language requirement.

**ITAL 203 Intensive Intermediate Italian (4)** Prerequisite: ITAL103 or equivalent. Not open to students who have completed ITAL122, four years of high school Italian, or is a fluent/native speaker of Italian. Credit will be granted for only one of the following: ITAL203 or ITAL122. Covers speaking, reading, writing, listening, and culture of Italian-speaking world.

**ITAL 204 Review Grammar and Composition (3)** Prerequisite: ITAL203 or ITAL122, or permission of department. An intensive review of major aspects of contemporary grammatical usage; training in comprehension; an introduction to guided composition.

**ITAL 211 Intermediate Conversation (3)** Prerequisite: ITAL203 or permission of department. Not open to native speakers of Italian. Practice in spoken Italian with emphasis on contemporary Italian culture.

**ITAL 241 Modern Italian Women Writers - in Translation (3)** An analysis of the writings and the ideas of modern Italian women writers.

**ITAL 251 Aspects of Contemporary Italian Literature and Culture (3)** Prerequisite: ITAL204 or ITAL211 or permission of department. Reading of selected literary texts; discussion and brief essays in Italian.



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**ITAL 261 Cuisine, Culture, and Society in Italy Yesterday and Today (3)** Prerequisite: ITAL204 or permission of department. This course will expose students to an important aspect of Italian culture. The art of gastronomy. Taught entirely in Italian, the course is intended to give students an in-depth understanding of the close relationship between food and culture, while enriching their knowledge of the Italian language through reading and analysis of various texts which deal with the preparation and adaptation of Italian food in different cultural settings.

**ITAL 271 The Italian-American Experience (in English) (3)** This course is an interdisciplinary study of Italian immigrants in the U.S. from the discovery of America to the present. Special emphasis on the intellectual, artistic and scientific achievements of Italian Americans in the New World and the formation of their national identity as a product of a new hybridized culture. The phenomenon of Italglish as an immigrant idiom, the problem of multiculturalism and the issue of ethnicity will also be examined in relationship with other ethno-cultural groups.

**ITAL 301 Composition and Style (3)** Prerequisite: ITAL204 or permission of department. Techniques of composition; grammatical analysis; elements of style; free composition.

**ITAL 302 Introduction to Translation (3)** Prerequisite: ITAL204 or permission of department. Translation exercises into English and Italian; problems and strategies.

**ITAL 306 Commercial Italian I (3)** Prerequisite: ITAL204 or permission of department. An introduction to Italian Business language and culture. Special emphasis on communicative strategies used in business transactions and applications. Reading and discussion of relevant articles relating to business world from on-line newspapers and magazines.

**ITAL 311 Italian Conversation: Current Events (3)** Prerequisite: ITAL211 or permission of department. Oral expression; development of idiomatic forms and vocabulary to level of the Italian press. Not open to students with native fluency.

**ITAL 350 Readings in Italian Literature (3)** Prerequisite: ITAL251 or permission of department. An exploration of principal figures, themes and styles from Dante through the Renaissance to Pirandello and present-day writers.

**ITAL 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**ITAL 388 Language House Colloquium (1)** Prerequisite: Residence in Language House. Repeatable to 4 credits. The Language House Colloquium is a one-credit course for students residing in the Language House Immersion Program. The course focuses on the further development of skills in the target language and the acquiring of cultural knowledge of the countries that speak the target language. The course is designed to supplement the learning that takes place on a daily basis in the Language House program.

**ITAL 399 Directed Study in Italian (1-3)** Prerequisite: permission of department. Repeatable to 3 credits. Intended for undergraduates who wish to work on an individual basis with a professor of their choice.

**ITAL 406 Commercial Italian II (3)** Prerequisite: ITAL306 or permission of department. Advanced study of commercial Italian language - terminology and style- in the area of business and finance. Emphasis on cross-cultural communications and international business operations, including exporting and banking. Readings on sociological issues of contemporary Italy used for written and oral practice of Italian and vocabulary enrichment.

**ITAL 411 Dante in Translation (3)** Credit will be granted for only one of the following: ITAL411 or ITAL412. Dante's thought as expressed in his major writings: The Vita Nuova, De Monarchia and The Divine Comedy. In English.

**ITAL 412 Dante in Italian (3)** Credit will be granted for only one of the following: ITAL411 or ITAL412. Dante's thought as expressed in his major writings: The Vita Nuova, De Monarchia and The Divine Comedy. In Italian.

**ITAL 421 The Italian Renaissance (3)** Credit will be granted for only one of the following: ITAL421 or ITAL422. A study of Major trends of thought in Renaissance literature, art, and science. In English.

**ITAL 422 The Italian Renaissance in Italian (3)** Credit will be granted for only one of the following: ITAL421 or ITAL422. A study of major trends of thought in Renaissance literature, art, and science. In Italian.

**ITAL 431 Italian Civilization in Translation (3)** Credit will be granted for only one of the following: ITAL431 or ITAL432. Political, social, intellectual, literary and artistic forces shaping contemporary Italy from the late Middle Ages to the present. In English.

**ITAL 432 Italian Civilization in Italian (3)** Credit will be granted for only one of the following: ITAL431 or ITAL432. Political, social, intellectual, literary and artistic forces shaping contemporary Italy from the late Middle Ages to the present. In Italian.

**ITAL 471 Italian Cinema: A Cultural Approach in Translation (3)** Credit will be granted for only one of the following: ITAL471 or ITAL472. Formerly ITAL 475. The culture of Italy through the medium of film from the silent days up to the present. In English.

**ITAL 472 Italian Cinema: A Cultural Approach in Italian (3)** Credit will be granted for only one of the following: ITAL471 or ITAL472. The culture of Italy through the medium of film from the silent days up to the present. In Italian.

**ITAL 473 Italian Cinema II - In Translation (3)** Freshman standing. Repeatable to 3 credits if content differs. Also offered as ITAL474. Credit will be granted for only one of the following: ITAL473 or ITAL474. Formerly ITAL 499E. A study of Italian society and culture through the medium of film from the mid 1970's to the present. In English.

**ITAL 474 Italian Cinema II - In Italian (3)** Three hours of lecture and one hour of discussion/recitation per week. Also offered as ITAL473. Credit will be granted for only one of the following: ITAL473 or ITAL474. Formerly ITAL 499I. A study of Italian society and culture through the medium of film from the mid 1970's to the present. In Italian.

**ITAL 475 The Italian Opera Libretto in English (3)** Prerequisite: One course in literature. Credit will be granted for only one of the following: ITAL475, or ITAL476. History and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini. In English.

**ITAL 476 The Italian Opera Libretto in Italian (3)** Credit will be granted for only one of the following: ITAL476 or ITAL475. History and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini. In Italian.

**ITAL 497 Senior Project (3)** Prerequisite: four courses at 400-level in Italian; permission of department. Individual independent study of an aspect of Italian literature, culture or society selected according to student interest and need in consultation with a member of the Italian program.

**ITAL 498 Special Topics in Italian Literature (3)** Repeatable to 6 credits if content differs.

**ITAL 499 Special Topics in Italian Studies (3)** Repeatable to 6 credits if content differs.

### IVSP – Individual Studies Program

**IVSP 317 Progress Report (1)** Prerequisite: Admission to IVSP major. A written analysis of the program. Students register for IVSP 317 only once, the semester before the final term.

**IVSP 318 Independent Learning Activities (1-6)** Prerequisite: Admission to IVSP major and prior arrangements with faculty sponsor. For IVSP majors only. Repeatable to 9 credits if content differs. An independent study course which students can use for a variety of out-of-class internship and research opportunities.

**IVSP 420 Senior Paper (3)** Prerequisite: Admission to IVSP major. For IVSP majors only. Synthesizing final paper or a final special project.

### JAPN – Japanese

**JAPN 101 Elementary Japanese I (6)** Introduction to basic patterns of contemporary spoken Japanese and to the two phonetic syllabaries (Katakana and Hiragana).

**JAPN 102 Elementary Japanese II (6)** Prerequisite: JAPN101 or equivalent. Continued introduction to the basic spoken patterns of contemporary Japanese.

**JAPN 106 Introductory Japanese III (3)** Prerequisite: JAPN101 or equivalent. Not open to students who have completed JAPN102. Credit will be granted for only one of the following: JAPN102 or JAPN106. Introduction to the basic spoken patterns of contemporary Japanese, and to limited reading and writing in kana/kanji. Intended for incoming freshmen and transfer students with some previous knowledge of Japanese.

**JAPN 201 Intermediate Japanese I (6)** Prerequisite: JAPN102 or equivalent. Contemporary spoken and written Japanese.

**JAPN 202 Intermediate Japanese II (6)** Prerequisite: JAPN201 or equivalent. Contemporary spoken and written Japanese.

**JAPN 214 Japanese Culture and Communication viewed through Anime (3)** By viewing animation with an emphasis on school life and youth culture, this course addresses issues such as interpersonal communication (verbal and non-verbal behavior), cultural values, norms, and expectations. Also, it introduces colloquial language. No previous knowledge of Japanese is required. (Open to high school seniors.)

**JAPN 217 Japanese Literature in the Age of the Samurai (3)** Introduction to the masterworks of medieval Japanese literature (c. 1200-1850) and to their intellectual and cultural backgrounds, focusing on prose fiction and drama.

**JAPN 298 Special Topics Japanese Literature (3)** Repeatable to 9 credits if content differs. Special Topics in Japanese Literature

**JAPN 301 Advanced Japanese I (6)** Prerequisite: JAPN202 or equivalent. Formerly JAPN 305. Advanced conversation, oral comprehension, and selected readings.

**JAPN 302 Advanced Japanese II (6)** Prerequisite: JAPN301 or equivalent. Formerly JAPN 306. Continued readings in varied modern texts and advanced conversation and oral comprehension.

**JAPN 317 Buddhism and Japanese Literature in Translation (3)** Religious and philosophical traditions central to Japanese imaginative life and literature from ancient to modern times.

**JAPN 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**JAPN 388 Language House Spring Colloquium (1)** Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

**JAPN 401 Readings in Modern Japanese I (3)** Prerequisite: JAPN302 or equivalent. Development of translation techniques, vocabulary, grammar, and reading speed. Readings in history, social sciences, modern literature, and modern newspaper and periodical literature.

**JAPN 402 Readings in Modern Japanese II (3)** Prerequisite: JAPN401 or equivalent. Continuation of more advanced readings.

**JAPN 403 Business Japanese I (3)** Prerequisite: JAPN302 or equivalent. Formerly JAPN 303. Conversation, reading, and writing applicable to Japanese business transactions, social meetings, and meetings with government organizations, with background material in English on professional business practices and social customs associated with business.

**JAPN 404 Business Japanese II (3)** Prerequisite: JAPN403 or equivalent. Formerly JAPN 304. Continuation of JAPN 403.

**JAPN 405 Readings in Advanced Modern Japanese (3)** Prerequisite: JAPN402 or equivalent or permission of department. Designed to further improve reading and translation skills; the course will include readings from newspaper articles, literary works, and academic publications in the social sciences and humanities. Listening exercises are included.

**JAPN 406 Translating Diplomatic Japanese (3)** Prerequisite: JAPN302 and permission of department. Formal, written, diplomatic Japanese to develop practical translation skills and to learn to use the computer as a telecommunications and translation workstation.

**JAPN 411 Introduction to Classical Japanese (3)** Prerequisite: JAPN306 or equivalent. Classical Japanese grammar and the varied styles of classical Japanese. Readings in classical texts drawn from the Heian, Kamakura, Muromachi, and Edo periods.

**JAPN 412 Classical Japanese (3)** Prerequisite: JAPN411. Continuation of JAPN 411 with more advanced classical Japanese.

**JAPN 414 Masterpieces of Classical Japanese Literature in Translation (3)** Major classics, with focus on philosophical, historical and cultural backgrounds.

**JAPN 415 Modern Japanese Fiction in Translation (3)** Major themes and literary developments in fiction from the late 19th century to the present. Emphasis on the works of Kawabata, Tanizaki, Mishima, and Abe.

**JAPN 416 Japanese Women and Women Writers (3)** Fiction and poetry by Japanese women from the Ninth Century to the present. Women's early role in creating and shaping a variety of literary genres, the silencing of women during the age of the shoguns, and the reemergence of a feminist tradition and women writers in the Twentieth Century. In English.

**JAPN 418 Japanese Literature in Translation (3)** Repeatable to 9 credits if content differs. Representative works of Japanese literature in translation.

**JAPN 421 History of the Japanese Language (3)** Investigation of the origin of the Japanese language, its relationship with other languages, and its development. In English.



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**JAPN 422 Introductory Japanese Linguistics (3)** An investigation of Japanese sound patterns and syntax through a comparison with English.

**JAPN 428 Seminar in Japanese Discourse and Conversation Analysis (3)** Prerequisite: JAPN302. Recommended: JAPN422. Repeatable to 6 credits if content differs. Presentation and discussion of classic and current readings in English and Japanese on theories and actual practice of discourse and conversation analysis. Students will learn transcription techniques and have an opportunity to apply them in a final term paper.

**JAPN 438 Topics in Japanese Pragmatics (3)** Prerequisite: JAPN201. Recommended: JAPN422. Repeatable to 9 credits if content differs. Also offered as JAPN638. Credit will be granted for only one of the following: JAPN438 or JAPN638. Basic concepts in the field of pragmatics (the study of language in context) such as deixis and indexicality, speech acts, ellipsis, and politeness. Readings in English on English and Japanese examples.

**JAPN 499 Directed Study in Japanese (1-3)** Prerequisite: permission of instructor. Repeatable to 6 credits if content differs.

### JOUR – Journalism

**JOUR 100 Professional Orientation (1)** Not open to students who have completed JOUR101. Credit will be granted for only one of the following: JOUR100 or JOUR101. Formerly JOUR 101. Survey of journalism professions, emphasizing appropriate academic and career development strategies.

**JOUR 150 Introduction to Mass Communication (3)** Not open to students who have completed JOUR100 prior to Fall 1999. Credit will be granted for only one of the following: JOUR100 or JOUR150. Formerly JOUR 100. Survey of the functions and effects of the mass media in the United States. A consumer's introduction to newspapers, television, radio, film, sound recording, books, magazines, and new media technology.

**JOUR 175 Media Literacy (3)** Two hours of lecture and one hour of discussion/recitation per week. Not applicable toward journalism major. An analysis of the information, values and underlying messages conveyed via television, newspapers, the internet, magazines, radio and film. Examines the accuracy of those messages and explores how media shape views of politics, culture and society.

**JOUR 181 Grammar for Journalists (1)** Pre- or corequisite: JOUR100. Credit will be granted for only one of the following: ENGL181, ENGL281, or JOUR181. An examination of the basic structure of written English needed for precise journalistic writing. Parts of speech, sentence patterns, standard punctuation, diction, and usage will be examined with emphasis with an emphasis on its application in journalism.

**JOUR 198 Survey Apprenticeship (1)** Prerequisite: permission of department. For JOUR majors only. Repeatable to 6 credits if content differs. College-monitored experience in approved mass-communications organizations and industries.

**JOUR 199 Survey Apprenticeship (1)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly JOUR 198. College-monitored experience in approved mass-communications organizations and industries.

**JOUR 200 Journalism History, Roles and Structures (3)** Pre- or corequisite: JOUR100. For JOUR majors only. Introduction to the study of journalism from the standpoint of media history and sociology.

**JOUR 201 News Writing and Reporting I (3)** Pre- or corequisite: JOUR100. Grammar competency demonstrated by a grade of C (2.0) or better in JOUR181 or a score of 52 or higher on the TSWE and permission of department. Sophomore standing. Introduction to news for the print and electronic media, development of new concepts: laboratory in news-gathering tools and writing skills.

**JOUR 202 News Editing (3)** Prerequisite: grade of C or better in JOUR201. For JOUR majors only. Copy editing, graphic principles and processes, new media technology.

**JOUR 203 New Media (1)** One hour of lecture and one hour of laboratory per week. Prerequisite: JOUR201. Corequisite: JOUR202. Preparing textual, audio and video news messages in a traditional deadline atmosphere for digital delivery.

**JOUR 231 News Writing and Reporting for Public Relations (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: Grammar competency demonstrated by a score of 52 or higher on the TSWE and permission of department. Credit will be granted for only one of the following: JOUR201P or JOUR231. Introduction to news for the print and electronic media, development of new concepts: laboratory in news-gathering tools and writing skills.

**JOUR 232 News Editing for Public Relations (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: Grade of C or better in JOUR231 or equivalent and permission of department. Credit will be granted for only one of the following: JOUR202P or JOUR232. Copy editing, graphic principles and processes, new media technology.

**JOUR 240 Advertising in America (3)** Not open to students who have completed JOUR340. Credit will be granted for only one of the following: JOUR240 or JOUR340. Formerly JOUR 340. Survey of the history, regulation and organization of advertising; advertising strategies and effects.

**JOUR 262 News Editing for Broadcast (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: Grade of C or better in JOUR201 and permission of department. Credit will be granted for only one of the following: JOUR202B or JOUR262. Principles and processes of broadcast newsroom editing.

**JOUR 300 Journalism Ethics (3)** Prerequisite: JOUR201. Examination of ethical problems in news writing and reporting.

**JOUR 320 News Writing and Reporting II: Print (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: grade of C or better in JOUR201. For JOUR majors only. Principles and practices of news reporting; covering news beats and other news sources, including researching news stories for accuracy, comprehensiveness and interpretation.

**JOUR 322 Advanced Reporting: Beats and Investigation (3)** Prerequisite: JOUR320 or JOUR360. Advanced training and practice in writing, interviewing, beat reporting and investigative techniques. Students meet in weekly seminars and work with metropolitan-area newspapers covering beats and writing stories for publication.

**JOUR 323 Advanced News Editing (3)** Prerequisite: grade of C or better in JOUR202. Principles and practices of editing for publication. Copy improvement, headline writing, news photos and cutlines, wire services, copy control and scheduling, page design and layout.

**JOUR 324 Commentary and Editorial Writing (3)** Prerequisite: JOUR320 or JOUR360. Not open to students who have completed JOUR326 prior to January 1, 1992. Formerly JOUR 326. Journalistic interpretation and analysis; commentary and editorial writing.

**JOUR 325 Print News Bureau (6)** Prerequisite: JOUR320 and permission of department. Advanced journalism training. Students report as part of College's Capital News Service program.

**JOUR 328 Special Topics in News Writing and Reporting (1-3)** Prerequisite: JOUR320 or JOUR360. Repeatable to 06 credits if content differs. Advanced training and practice in writing and reporting news.

**JOUR 341 Persuasion in Advertising (3)** Prerequisites: JOUR201 or JOUR240. Exposure to persuasive principles employed in modern advertising; advertising writing for the mass media.

**JOUR 350 Graphics (3)** Prerequisite: grade of C or better in JOUR202. Credit will be granted for only one of the following: JOUR350 or JOUR373. Formerly JOUR 373. Introduction to visual components of new content and design; type and typography, printing processes, and illustration.

**JOUR 351 Advanced Graphics (3)** Prerequisite: JOUR350. In-depth analysis of News graphics.

**JOUR 352 Online Journalism (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR202 or JOUR262. For JOUR majors only. Editing and writing online, using basic Web-coding skills and tools to create news and feature packages for the Internet. New-media issues, including interactivity and individualization, will also be discussed.

**JOUR 353 Advanced Online Reporting (3)** Three hours of laboratory per week. Prerequisite: JOUR352, permission of department and JOUR320 or JOUR360. Advanced reporting and writing in an online environment focusing on multimedia and non-traditional storytelling. Students report and write for an online magazine.

**JOUR 355 Online News Bureau (3)** Prerequisite: (JOUR202 or JOUR262) and (JOUR320 or JOUR360) and JOUR352; and permission of department. Advanced online journalism training. Students work as multimedia editors and producers for an online newsmagazine, building interactive content and special reports.

**JOUR 360 News Writing and Reporting II: Broadcast (3)** Prerequisite: grade of C or better in JOUR201. For JOUR majors only. Writing and reporting for broadcast media: production of news stories.

**JOUR 361 Television Reporting and Production (3)** Prerequisite: JOUR360. Writing and editing for the broadcast media. Interpretive and documentary news stories.

**JOUR 362 Broadcast News Producing (3)** One hour of lecture and four hours of laboratory per week. Prerequisite: JOUR262 and JOUR360; Pre- or corequisite: JOUR361. Credit will be granted for only one of the following: JOUR362 or JOUR368B. Formerly JOUR 368B. Producing TV news.

**JOUR 363 Long Form Broadcast Journalism (3)** Prerequisite: JOUR361 and permission of department. For JOUR majors only. Also offered as JOUR663. Credit will be granted for only one of the following: JOUR363 or JOUR486. Formerly JOUR 486. Production of long form broadcast news reporting, reality videos or documentaries.

**JOUR 367 Broadcast News Bureau (6)** Prerequisite: JOUR361 and permission of department. Advanced broadcast journalism training. Students report as part of the College's Capital News Service program.

**JOUR 368 Topics in Broadcast and Electronic Media (1-3)** Prerequisite: JOUR360. Repeatable to 6 credits if content differs. Advanced research, analysis and/or practice of selected topics in broadcast journalism.

**JOUR 371 Feature Writing (3)** Prerequisite: JOUR320. Research and writing feature articles.

**JOUR 372 Writing the Complex Story (3)** Prerequisite: JOUR371. Credit will be granted for only one of the following: JOUR372 or JOUR481. Formerly JOUR 481. Explanatory journalism technique applied to complex subjects (such as science, economics and large scale social change) for books, magazines and newspaper series.

**JOUR 374 Magazine Editing and Production (3)** Prerequisites: JOUR371 and JOUR373. Principles and techniques of magazine editing and production.

**JOUR 375 Newsroom Management (3)** Prerequisite: JOUR320 or JOUR360 or permission of department. Not open to students who have completed JOUR461. Credit will be granted for only one of the following: JOUR375 or JOUR461. Formerly JOUR 461. Organization, operation, and administration of the departments of a newsroom: advertising, business-finance, circulation, news-editorial, personnel, production and promotion.

**JOUR 377 Literary Journalism (3)** Pre- or corequisite: JOUR371. Credit will be granted for only one of the following: JOUR377 or JOUR487. Formerly JOUR 487. Practice in the use of literary techniques and especially of dramatic structure in modern newspaper series, magazine pieces and books. Analysis, researching and writing of nonfiction stories, usually with a focus on a specialized area chosen by the student.

**JOUR 380 Science Writing for News Media (3)** Prerequisite: JOUR320 or permission of department. Writing of scientific and technical material for the general audience.

**JOUR 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**JOUR 389 News Coverage of Special Topics (1-3)** Prerequisite: JOUR320 or JOUR360. Repeatable to 6 credits. Advanced training and practice in writing and reporting news in one specialized field of interest.

**JOUR 398 Independent Study (1-3)** Repeatable to 3 credits. Individual projects in journalism.

**JOUR 399 Supervised Internship (1)** Prerequisite: Grade of C or better in JOUR320 or JOUR360. Repeatable to 3 credits if content differs. Credit will be granted for only one of the following: JOUR326, JOUR366, JOUR396 or JOUR399. Formerly JOUR 396. Supervised news internship experience; relation of academic training to professional experience.

**JOUR 400 Media Law (3)** Prerequisite: JOUR320 or JOUR360 or JOUR501. Junior standing. Legal rights and constraints of mass media; libel, privacy, copyright, monopoly, contempt, and other aspects of the law applied to mass communication. Previous study of the law not required.

**JOUR 410 History of Mass Communication (3)** Junior standing. Development of newspapers, magazines, radio, television and motion pictures as media of mass communication. Analysis of the influences of the media on the historical development of America.

**JOUR 420 Media Coverage of Government and Politics (3)** Junior standing. Relationship between news media and government and politics; governmental and political information and persuasion techniques.

**JOUR 430 Comparative Mass Communication Systems (3)** Junior standing. Comparative analysis of the role of the press in different societies.

**JOUR 440 Media Economics (3)** Junior standing. Examination of the economics of the news media.

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**JOUR 450 Mass Media in Society (3)** Junior standing. Ethical, moral, political, economic, and social consideration of mass communication.

**JOUR 451 Advertising and Society (3)** Junior standing. Advertising as an institution with manifest economic purposes and latent social effects. Influences of advertising on people, and related issues of ethics and social responsibility.

**JOUR 452 Women in the Media (3)** Junior standing. Also offered as WMST452. Credit will be granted for only one of the following: JOUR452 or WMST452. Participation and portrayal of women in the mass media from colonial to contemporary times.

**JOUR 453 News Coverage of Racial Issues (3)** Junior standing. Analysis of news media coverage of issues relating to racial minorities in the United States, with special attention to Hispanics, Asian Americans, African Americans and Native Americans.

**JOUR 459 Special Topics in Journalism (1-3)** Repeatable to 6 credits if content differs. Issues of special concern and current interest. Open to all students.

**JOUR 462 Professional Seminar in Public Affairs Reporting (3)** Prerequisite: permission of department. Explore theoretical and practical issues in the press coverage of governments. Examine the complex press-government relationship.

**JOUR 463 Newsroom Management (3)** Prerequisite: JOUR320 or JOUR360; or permission of department. Credit will be granted for only one of the following: JOUR375, JOUR461, or JOUR463. Formerly JOUR 375. Organization, operation, and administration of the departments of a newsroom: advertising, business-finance, circulation, news-editorial, personnel, production, and promotion.

**JOUR 464 Readings in Journalism Literature (3)** Credit will be granted for only one of the following: JOUR376 or JOUR464. Formerly JOUR 376. Analysis of books by journalists highly regarded for writing style and/or the content of their reporting, with an emphasis on understanding the books in the context of national and international affairs.

**JOUR 465 Visual Communication (3)** Prerequisite: JOUR201. Junior standing. Practical and theoretical examination of visual communication processes related to photography, layout and design, video and Web information products.

**JOUR 466 Survey of Broadcast and Electronic News Media (3)** Prerequisite: JOUR201. Credit will be granted for only one of the following: JOUR365 or JOUR466. Formerly JOUR 365. Descriptive and critical analysis of broadcast news practices, regulation and history; evaluation of news judgments; decision-making and organizational aspects of the broadcast news industry.

**JOUR 467 Technology and the Media (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR320 or JOUR360. Recommended: JOUR352. Exploration of the role of information technology in social change.

**JOUR 470 Journalism and Public Communication Research (3)** Prerequisite: A university statistics course. Students are encouraged to have completed the theory and skills courses in their major sequence. Credit will be granted for only one of the following: JOUR470 or JOUR477. Formerly JOUR 477. Journalism and public communication research methods used in measuring public opinion and media programs and materials.

**JOUR 471 Public Opinion Research (3)** Prerequisite: A University Statistics Course. Measurement of public opinion and media habits; role of the media in the formation of public opinion.

**JOUR 472 Computer-Assisted Reporting (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: JOUR320 or JOUR360. Not open to students who have completed JOUR328. Credit will be granted for only one of the following: JOUR328 or JOUR472. Formerly JOUR 328. Computer and online data acquisition; analytical methods for writing and reporting news.

**JOUR 479 Special Topics in Data Gathering and Analysis (1-3)** Prerequisite: JOUR320, JOUR360. Repeatable to 3 credits. Special research topics for reporting and writing.

**JOUR 494 Yearbook Short Course (1)** Prerequisite: JOUR201 or permission of department. Credit not applicable toward major in journalism. Intensive course dealing with the theme, content, copy, design, advertising, budget, finance, law and ethics of yearbook development and production.

**JOUR 498 Topics in Scholastic Journalism (1-3)** Repeatable to 99 credits if content differs. Seminars on specialized areas on the practice of scholastic journalism.

### JWST – Jewish Studies

**JWST 121 Jewish Civilization (3)** Also offered as HIST126. Credit will be granted for only one of the following: JWST121 or HIST126. Jewish history, culture and society from Biblical times to the present.

**JWST 141 American Jewish Experience (3)** Also offered as HIST106. Credit will be granted for only one of the following: JWST141 or HIST106. History of the Jews in America from Colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic and political life.

**JWST 219 Special Topics in Jewish Studies (3)** Repeatable to 9 credits if content differs.

**JWST 227 Reconstructing the Civilization of Ancient Mesopotamia (3)** Also offered as HIST280. Not open to students who have completed HEBR440. Credit will be granted for only one of the following: JWST227 or HIST280. Formerly HEBR 440. History and culture of Ancient Mesopotamia, as reconstructed from archeology, language, and texts of the region. Emphasis on culture, literature, religion, and institutions.

**JWST 230 Introduction to the Rabbinic Movement: History and Culture (3)** Also offered as HIST281. Credit will be granted for only one of the following: JWST230 or HIST281. The emergence of the Rabbinic movement after the destruction of the Temple in 70 CE through the 7th Century CE. The essential texts of ancient rabbinic literature.

**JWST 231 Jewish Texts and Cultures of the Second Temple Period (3)** Credit will be granted for only one of the following: JWST231, JWST219C (Fall 2005), JWST219F (Fall 1998), HIST219C (Fall 2005), or HIST219D (Fall 1998). An introduction to the literature, history, and culture of Jews in the period between the sixth century BCE and the second century CE. Special topics may include the rise of the formation of the biblical canon, scriptural interpretation, sectarian and revolutionary movements, and growth of the diaspora.

**JWST 234 History of the Jewish People I (3)** Also offered as HIST282. Credit will be granted for only one of the following: JWST234 or HIST282. Political, economic, social and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Rabbinic Judaism and its subsequent encounter with medieval Christian and Islamic civilizations.

**JWST 235 History of the Jewish People II (3)** Also offered as HIST283. Credit will be granted for only one of the following: JWST235 or HIST283. Political, economic, social and cultural development within Jewish history from the end of the Middle Ages to the present. Special attention to the twentieth century developments including the Nazi Holocaust and its aftermath, the Zionist movement and the creation of the State of Israel, and the rise of the contemporary American-Jewish community.

**JWST 250 Fundamental Concepts of Judaism (3)** Also offered as PHIL234. Not open to students who have completed PHIL234. Credit will be granted for only one of the following: JWST250 or PHIL234. A conceptual introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of “normative” Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

**JWST 251 Authority, Faith, and Reason in Judaism (3)** Also offered as PHIL235. Not open to students who have completed PHIL235 or HEBR298J. Credit will be granted for only one of the following: JWST251 or PHIL235. A broad survey of the concepts of authority, faith, and reason in Jewish tradition from the Bible to the modern period, and their interrelationships.

**JWST 260 Introduction to Classical Hebrew I (3)** Prerequisite: HEBR111 or equivalent. Also offered as HEBR298A. Not open to students who have completed HEBR401. Formerly HEBR 401. Readings of the Bible and other classical texts in original Hebrew. Emphasis on classical grammar and vocabulary, and reading of textual passages.

**JWST 261 Introduction to Classical Hebrew II (3)** Prerequisite: JWST260 or permission of department. Also offered as HEBR298B. Not open to students who have completed HEBR402. Formerly HEBR 402. Continuation of JWST 260. Readings in the Bible and other classical texts in original Hebrew. Emphasis on classical grammar and vocabulary, and reading of textual passages.

**JWST 262 The Hebrew Bible: Narrative (3)** Also offered as ENGL262. Not open to students who have completed HEBR223. Credit will be granted for only one of the following: JWST262 or ENGL262. Formerly HEBR 223. Selected readings from narrative sections of the Hebrew Bible stressing the new literary approaches to the biblical text. In English; no knowledge of Hebrew required.

**JWST 263 Hebrew Bible: Poetry and Prophecy (3)** Also offered as ENGL263. Not open to students who have completed HEBR224. Credit will be granted for only one of the following: JWST263 or ENGL263. Formerly HEBR 224. Readings of poetic and prophetic selections from the Hebrew Bible. Analysis of devices and their rhetorical effect. Comparison of biblical poetry with other poetry of the ancient Near East. In English; no Hebrew required.

**JWST 270 Fantasy and Supernatural in Jewish Literature (3)** Two hours of lecture and one hour of discussion/recitation per week. Also offered as HONR2190. Credit will be granted for only one of the following: HONR2190, JWST2190, or JWST270. Formerly JWST 2190. An examination of Jewish fantastical and supernatural literature from ancient to modern times, tracing how such stories have addressed essential questions of good and evil, power and powerlessness within a Jewish framework. Topics include intersections of Jewish and non-Jewish cultures.

**JWST 272 Jewish Literature in Translation (3)** Not open to students who have completed HEBR231. Formerly HEBR 231. A survey of Jewish literature from ancient times to the present. Methods for reading literature in general and Jewish literature in particular will be emphasized. Concern with what makes a literary corpus “Jewish.” Readings from the Bible, the Midrash, the Talmud, Medieval Hebrew poetry, as well as modern Hebrew, Yiddish, and English poetry and prose. All texts in English translation.

**JWST 275 The Jew and the City through the Centuries (3)** Also offered as HIST286. Credit will be granted for only one of the following: HIST286 or JWST275. Jewish urban experience from ancient times to the present. Public space and private. The city and the sacred. Jewish ghettos and quarters. The struggle over modern Jerusalem.

**JWST 281 Yiddish I (3)** Also offered as GERM148Y. Not open to students who have completed GERM148Y. Introduction to the Yiddish language, with emphasis on speaking, reading, and writing skills. Students will also learn the history of the language, its significance to Jewish culture, its origins and basic structure.

**JWST 282 Elementary Yiddish II (3)** Prerequisite: JWST281 or GERM148Y or permission of department. Also offered as GERM149Y. Not open to students who have completed GERM149Y. Continuation of JWST 281.

**JWST 304 Critical Approaches to Israeli Culture (3)** Formerly:JWST419B and JWST419K. Also offered as HEBR498L. An examination of the intersections of literature, society, philosophy, and politics in the making of modern Israeli culture. Special attention will be paid to the Zionist emphasis on making “new” Jews and its implications when expressed in literature and society.

**JWST 324 Biblical History and Culture (3)** Also offered as HIST321. Not open to students who have completed HEBR333 or HIST321. Credit will be granted for only one of the following: JWST324 or HEBR333 or HIST321. Formerly HEBR 333. Study of the political, social, and religious development of the Jewish nation from its inception to its return from exile in Babylonia around 536 C.E. Focus on biblical texts, archeological finds, and source materials from neighboring cultures to reconstruct political history and the development of religious concepts.

**JWST 325 Jews and Judaism in Antiquity I: Sixth Century BCE through the (3)** First Century CE Also offered as HIST370. Credit will be granted for only one of the following: JWST325 or HIST370. Political, social and religious history of the Jews from the Persian Period to the Judean Revolt of 66-70CE. Special attention to the rise of sectarian and revolutionary movements.

**JWST 326 Jews and Judaism in Antiquity II: First through Seventh Centuries (3)** Also offered as HIST371. Credit will be granted for only one of the following: JWST326 or HIST371. Political, social and religious history of the Jews from the destruction of the Jerusalem Temple in 70 CE to the Muslim conquests. Special attention to the political transformations in Judaism under late Roman Christianity, and the rise of the Rabbinic movement.

**JWST 331 Early Christianity: Jesus to Constantine (3)** Also offered as HIST320. Not open to students who have completed HIST320. Credit will be granted for only one of the following: JWST331 or HIST320. Social and religious history of early Christianity from its origin in the first century to the reign of Constantine.

**JWST 342 History of Zionism and the State of Israel (3)** Also offered as HIST376. Credit will be granted for only one of the following: JWST342 or HIST376. Ideological and political factors leading to the establishment of a secular Jewish state in 1948; Zionist thought of Herzl, Ahad Haam, the socialist and religious Zionists, and the revisionists; diplomatic activities; Arab-Israel conflict; post-1948 Israeli society.

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**JWST 343 Modern Jewish History I: The Road to Emancipation, 1650-1870 (3)** Also offered as HIST374. Credit will be granted for only one of the following: JWST343 or HIST374. Social, political, economic, and cultural change in the Jewish world since 1650. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 17th to the 20th centuries.

**JWST 344 Modern Jewish History II: World Jewry Since 1870 (3)** Also offered as HIST375. Credit will be granted for only one of the following: JWST344 or HIST375. Continuation of JWST 343: Social, political, economic, and cultural change in the Jewish world since 1870. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 19th Century to the present.

**JWST 345 The Holocaust of European Jewry (3)** Also offered as HIST307. Credit will be granted for only one of the following: JWST345 or HIST307. Roots of Nazi Jewish policy in the 1930s and during World War II: the process of destruction and the implementation of the “final solution of the Jewish problem” in Europe, and the responses made by the Jews to their concentration and annihilation.

**JWST 376 Literature of the Holocaust (3)** An exploration of the primary texts of the literary canon of the Holocaust: Night by Elie Wiesel, The Diary of Anne Frank, Maus by Art Spiegelman, and other lesser known works. Exploration of the strategies used by authors of Holocaust narratives to depict a subject matter that has long been considered impossible, and to some extent, unethical to render in a work of art.

**JWST 408 Honors Seminar in Jewish Studies (3)** Prerequisite: permission of department. Junior standing. An in-depth exploration of a theme in Jewish history, literature, culture or thought. Course subject and readings will vary from year to year, but will generally cut across periods, locations, or disciplines. Students are expected to engage the course material critically and to use the seminar as an opportunity to develop an independent research agenda.

**JWST 409 Research Seminar in Jewish Studies (3-4)** Prerequisite: Two upper-level courses in an appropriate area of Jewish Studies or permission of department. Repeatable to 9 credits if content differs. Formerly JWST 309. A capstone course for Jewish Studies. Guides students through advanced source material and subject matter, research skills, and presentation techniques. A substantive paper based on independent research and analysis is one expected outcome.

**JWST 419 Special Topics in Jewish Studies (3)** Repeatable to 9 credits if content differs.

**JWST 451 Issues in Jewish Ethics and Law (3)** Prerequisite: three credits in philosophy or Jewish studies (excluding Hebrew language), or permission of department. Also offered as PHIL433. Not open to students who have completed PHIL433 or HEBR451. Credit will be granted for only one of the following: PHIL433 or JWST451 or HEBR451. Formerly HEBR 451. Philosophical and meta-legal questions concerning the nature of Jewish law and its relation to morality.

**JWST 452 The Golden Age of Jewish Philosophy (3)** Prerequisite: three credits in Philosophy or permission of department. Also offered as PHIL417. Not open to students who have completed PHIL417. Credit will be granted for only one of the following: JWST452 or PHIL417. Jewish philosophy from Maimonides in the 12th Century to the expulsion of the Jews from Spain at the end of the 15th Century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.

**JWST 453 Philosophy of Spinoza (3)** Prerequisite: six credits in philosophy or permission of department. Also offered as PHIL424. Not open to students who have completed PHIL424. Credit will be granted for only one of the following: JWST453 or PHIL424. An investigation of the metaphysical, ethical and political thought of the 17th century philosopher Benedict Spinoza.

**JWST 466 Readings in Medieval Hebrew (3)** Prerequisite: HEBR212 or permission of department. Not open to students who have completed HEBR472. Credit will be granted for only one of the following: HEBR472 or JWST466. Formerly HEBR 472. Introductory readings in Medieval Hebrew texts. Language of instruction English; all texts in Hebrew.

**JWST 468 Readings in the Hebrew Bible (3)** Prerequisite: HEBR212 or equivalent. Formerly HEBR441 and HEBR442. Not open to students who have completed HEBR441 and HEBR442. Readings in the Hebrew text of the Bible. Emphasis in close reading, grammar analysis, and modern interpretations of the Bible. Language of instruction English; all texts in Hebrew.

**JWST 469 Readings in Rabbinic Hebrew (3)** Prerequisite: HEBR212 or equivalent. Repeatable to 9 credits if content differs. Credit will be granted for only one of the following: HEBR471 or JWST469. Introductory readings in Mishnaic and Talmudic Hebrew texts. Language of instruction English; all texts in Hebrew.

**JWST 471 Modern Hebrew Literature in Translation (3)** An exploration of modern Hebrew prose, poetry, and literary essays written from the 1880s through the present in Europe, Palestine, and Israel. An investigation of the challenges confronting authors such as Mendele Mokher Sforim, Avraham Mapu, Chaim Nahman Bialik, Dvora Baron, S.Y. Agnon, and David Fogel as they tried to create a contemporary secular literature out of an ancient sacred language. All texts in English translation.

**JWST 491 Judaism and the Construction of Gender (3)** Also offered as WMST491. Credit will be granted for only one of the following: JWST419X, JWST491 or WMST491. Formerly JWST 419X. The study of Jewish culture, religious practice, communal authority, and literature through the frame of such critical categories of analysis as gender, sexuality, masculinity, power, ethics, and the feminine.

**JWST 493 Jewish Women in International Perspective (3)** Prerequisite: one course in Women's Studies, preferably WMST200 or WMST250. Also offered as WMST493. Credit will be granted for only one of the following: JWST493 or WMST493. Using memoirs, essays, poetry, short stories, films, music and the visual arts, course will interrogate what it means/has meant to define oneself as a Jewish woman across lines of difference. Focus is largely on the secular dimensions of Jewish women's lives but will also explore the implications of Jewish law and religious practices for Jewish women. Our perspective will be international, including Ashkenazi and Sephardi women.

**JWST 499 Independent Study in Jewish Studies (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

### KNES – Kinesiology

**KNES 182 Rhythmic Activities (2)** Six hours of laboratory per week. Development of rhythmic sensitivity through analysis of rhythm and its application to movement, skills in folk, square and social dance and teaching techniques for use in schools and recreational programs.

**KNES 183 Movement Content for Elementary School Children (3)** Participation in movement activities with a focus on educational dance, gymnastics and games. Observation and analysis of movement behavior in relation to specific aspects of movement. Examination of relationships among movement forms.

**KNES 190 Personal Fitness and Wellness (2)** One hour of lecture and two hours of laboratory per week. For KNES and Physical Education Majors Only. Scientific principles, concepts, and techniques designing personal fitness and/or physical activity programs.

**KNES 218 Laboratory in Teaching (1)** Prerequisite: permission of department. Repeatable to 2 credits. The course is designed to prepare the student for the student teaching experience by assisting in a class.

**KNES 240 Exploring Cultural Diversity Through Movement (3)** Cultural diversity through an analysis of the different meanings that movement activities serve within different cultural groups. Students will examine how cultural affiliations can influence why and how members of different cultural groups engage in movement activities.

**KNES 245 Methods of Teaching Physical Education (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: KNES183. Not open to students who have completed KNES314. Credit will be granted for only one of the following: KNES245 or KNES314. Pedagogical methods for teaching children and adolescents using direct and indirect styles and strategies. Application of educational philosophy and psychology principles to instruction, class organization and management in physical education.

**KNES 260 Science of Physical Activity and Cardiovascular Health (3)** Course details (1) the public health importance of and the processes underlying cardiovascular disease, (2) the risk factors for cardiovascular disease and the methods whereby they were identified, and (3) the principles of the scientific evidence supporting the use of physical activity to prevent cardiovascular disease.

**KNES 282 Basic Care and Prevention of Athletic Injuries (3)** Credit will be granted for only one of the following: KNES282 or KNES381. Formerly KNES 381. Theoretical and practical foundations of the prevention, treatment and rehabilitation of athletically related injuries. Topics include: physical conditioning, preventive taping, recognition of injuries, first aid and CPR.

**KNES 287 Sport and American Society (3)** Sport will be related to such social problems as delinquency, segregation, collective behavior, and leisure; to social processes such as socialization, stratification, mobility, and social control; and to those familiar social institutions the family, the school, the church, the military, the economy, the polity, and the mass media.

**KNES 289 Topical Investigations (1-6)** Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

**KNES 290 Teaching Physical Activity & Fitness Concepts (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: KNES190. Teaching practices for physical activity and fitness concepts appropriate for children and adolescents in school and recreational programs. Pedagogical methods, strategies, styles, and techniques that encourage program participation.

**KNES 291 Teaching for Sequential Skill Development (3)** Two hours of lecture and two hours of laboratory per week. Corequisite: KNES370. Introduction to motor skill teaching from novice to advanced performer. Techniques and technologies used in skill analysis, correction and feedback to enhance and assess performance.

**KNES 292 Teaching Game Concepts and Tactics (3)** Two hours of lecture and two hours of laboratory per week. Teaching progressions for game concepts and tactics. Sequential development of temporal and spatial concepts through progressively more complex offensive and defensive strategies.

**KNES 293 History of Sport in America (3)** The growth and development of sport in America. The transformation of sport within the perspective of American history, including class sport, professionalization, amateurism, and international involvement.

**KNES 300 Biomechanics of Human Motion (4)** Three hours of lecture and two hours of laboratory per week. Prerequisite: BSCI201. The study of human movement and the physical and physiological principles upon which it depends. Body mechanics, posture, motor efficiency, sports, the performance of a typical individual and the influence of growth and development upon motor performance.

**KNES 333 Physical Activity for Students with Special Needs (3)** Implications of Federal and State regulations for planning and implementing physical activity programs for students with special needs. Evaluation strategies for assessing motor performance and the role of physical activity in educational programs for these students.

**KNES 335 Swimming Pool Management (2)** Analysis of the position of the swimming pool manager. The systematic treatment of swimming pool water; swimming pool first aid; and laws pertaining to swimming pool operation. Qualifies the student for a pool operator's license in most Maryland counties.

**KNES 340 Theory of Coaching Athletics (2)** General theory and practice of coaching selected competitive sports found in secondary schools and community recreation programs.

**KNES 350 The Psychology of Sports (3)** An exploration of personality factors, including but not limited to motivation, aggression and emotion, as they affect sports participation and motor skill performance.

**KNES 351 Contemporary Issues in American Sport (3)** Prerequisite: KNES287. Seminar/discussion of theoretical and practical issues in contemporary sport.

**KNES 355 Sport Management (3)** Prerequisite: KNES287. Junior standing. Credit will be granted for only one of the following: KNES355 or KNES498M. Formerly KNES 498M. Application of concepts and issues related to management principles and business concerns across various sections of the sport industry. Principles pertaining to the management of sport organizations.

**KNES 357 Sport and Culture in the Global Marketplace (3)** Two hours of lecture and three hours of discussion/recitation per week. Prerequisite: KNES287 or permission of department. Credit will be granted for only one of the following: KNES357 and KNES389a. Formerly KNES 389A. Through study abroad experience, critically appraise similarities and differences in the management, production, meaning, promotion and consumption of sport and culture in the global marketplace.

**KNES 360 Physiology of Exercise (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: {BSCI201; and BSCI202}; or permission of department. A study of the physiology of exercise, including concepts of work, muscular contraction, energy transformation, metabolism, oxygen debt, and nutrition and athletic performance. Emphasis on cardiovascular and respiratory function in relation to physical activity and training.

**KNES 370 Motor Development (3)** Motor development across the life span. The developmental sequences of motor skills from birth to old age; neuromaturation of neuromuscular system; analysis of the underlying mechanisms of motor skill development; and correlates of motor development.

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**KNES 371 Elementary School Physical Education: A Movement Approach (3)** Prerequisites: KNES183 and KNES370. Formerly KNES 421. An analysis of movement philosophy and content, focusing upon cognitive, psychomotor and affective developmental characteristics in relation to progression and planning of games, educational dance and educational gymnastics for elementary school age children.

**KNES 382 Advanced Care and Prevention of Athletic Injuries (3)** Prerequisites: BSCI201 and BSCI202 and KNES282. Advanced theoretical and practical foundations of the prevention, treatment and rehabilitation of athletically related injuries. This course is required for the student seeking NATA certification.

**KNES 385 Motor Control and Learning (3)** Physiological and cognitive bases for motor control and their applications to the acquisition of movement skills and understanding of movement disorders. Topics include: neurophysiology, motor control theory, sensory/perceptual processes, perception-action coupling, information processing, memory, attention, individual differences, motivation, practice organization and role of feedback.

**KNES 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by faculty sponsor, and student's internship sponsor. Junior standing.

**KNES 389 Topical Investigations (1-3)** Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

**KNES 390 Practicum/Internship in Teaching Physical Education (3)** One hour of lecture and four hours of laboratory per week. Corequisite: KNES491. Teaching of children in a physical education setting. Specific emphasis on the development of a professional portfolio demonstrating understanding of curriculum development, lesson planning, progressions and evaluation of teaching performance.

**KNES 398 Honors Seminar (1)** One hour of discussion/recitation per week. Prerequisite: participation in honors program. Repeatable to 3 credits. Guided discussion of research topics of current interest.

**KNES 399 Honors Thesis (3)** Prerequisites: KNES398H; and candidacy for honors in Kinesiology. Advisement will be on the individual basis. Thesis must be defended in the honors seminar.

**KNES 402 Biomechanics of Sport (3)** Prerequisite: KNES300. Mechanical determinants influencing sport techniques. A quantitative, scientific basis for sport analysis with emphasis on the application to numerous sport activities. Evaluation and quantification of the filmed performance of athletes.

**KNES 451 Children and Sport: A Psychosocial Perspective (3)** Prerequisite: KNES350 and junior standing. Junior standing. Examination of youth sports from a psychosocial perspective, including the impact of highly structured sports on young athletes and the complex social network of coaches, parents and peers.

**KNES 455 Scientific Bases of Athletic Conditioning (3)** Prerequisite: KNES360. An examination of physical fitness/athletic conditioning programs stressing the practical application of exercise physiology theory for enhancing athletic performance. Cardiovascular considerations, strength and power development, nutrition, speed, muscular endurance, environmental considerations and ergogenic aids.

**KNES 461 Exercise and Body Composition (3)** Prerequisite: KNES360. Physiological concepts relating body composition factors to exercise and human performance. The scientific basis for the establishment and evaluation of conditioning programs where body composition may play an important role, such as weight control and athletics.

**KNES 462 Neural Basis of Human Movement (3)** Prerequisites: {BSCI201; and BSCI202; and KNES385} or permission of department. An introduction to the neural substrates which underlie postural and volitional movement. Neuroanatomical and neurophysiological basis of motor functioning; past and present conceptualizations of motor control and coordination; movement disorders; and maturation of the neuromuscular system.

**KNES 466 Graded Exercise Testing (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: KNES360 or permission of department. Functional and diagnostic examination of the cardiovascular responses to graded exercise testing. Emphasis on electrophysiology, mechanisms of arrhythmias, normal electrical activation of the heart, axis termination and the normal 12-lead electrocardiogram.

**KNES 470 Seminar For Student Teachers (2)** A seminar held concurrently with student teaching in physical education. An intensive examination of current problems and issues in teaching physical education.

**KNES 476 Honors Thesis Proposal (3)** Restricted to KNES Honors students only. Corequisite: KNES478. Senior standing. Credit will be granted for only one of the following: KNES498R or KNES476. Formerly KNES 498R. Development of honors thesis proposal based on preliminary research and literature review. Presentation of formal proposal to the thesis committee and fellow honors students.

**KNES 477 Honors Thesis (3)** Restricted to KNES Honors students only. Prerequisite: KNES476. Corequisite: KNES478. Senior standing. Credit will be granted for only one of the following: KNES399 or KNES477. Formerly KNES 399. Advisement will be on the individual basis. Thesis must be defended in the honors seminar.

**KNES 478 Honors Seminar (1-3)** Restricted to KNES Honors students only. Junior standing. Repeatable to 4 credits if content differs. Credit will be granted for only one of the following: KNES398 or KNES478. Formerly KNES 398. Guided discussion of research topics of current interest.

**KNES 480 Measurement in Physical Education (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH110. A study of the principles and techniques of educational measurement as applied to the teaching of physical education; study of the functions and techniques of measurement in the evaluation of student progress toward the objectives of physical education and in the evaluation of the effectiveness of teaching.

**KNES 481 Biophysical Aspects of Human Movement (3)** Prerequisites: KNES300; and KNES360; and KNES370; and KNES385. Scientific principles and research techniques in the investigation of the biophysical basis of human movement.

**KNES 482 Socio-behavioral Aspects of Human Movement (3)** Prerequisites: KNES287; and KNES293; and KNES350. Derivation, formulation, and application of research in the socio-behavioral aspects of human movement.

**KNES 483 Sport Marketing and Media (3)** Prerequisite: KNES287. Junior standing. Not open to students who have completed KNES498L prior to the Fall 2001 semester. Industry practices in sport marketing and media. Marketing strategies and consumer behavior in different sport contexts. Critical examination of selected social and economic issues related to the buying and selling of sport.

**KNES 484 Sporting Hollywood (3)** Prerequisite: KNES287, KNES293. Junior standing. Credit will be granted for only one of the following: KNES484 and KNES498N. Formerly KNES 498N. Popular representations of sport within the film media related to wider social discourses on bodies and the politics of various categories of subjectivity (gender, sexual, racial, class and national).

**KNES 485 Sport and Globalization (3)** Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: KNES287. Junior standing. Credit will be granted for only one of the following: KNES485 and KNES498T. Formerly KNES 498T. Examination of sport culture from a global perspective; focuses on theorizing the similarities and differences between various national sporting cultures.

**KNES 486 Politics and Economics of Organized Contemporary Sport (3)** Prerequisite: KNES287. Interdependence of sport, politics, and economics. The structure, organization, and uses of sport in contemporary societies.

**KNES 489 Field Laboratory Projects and Workshop (1-6)** Repeatable to 6 credits. Workshops and research projects in special areas of knowledge not covered by regularly structured courses.

**KNES 491 The Curriculum in Physical Education (3)** Prerequisites: KNES300, KNES360, and KNES371. Curriculum sources, principles, and planning concepts, with emphasis on using valid criteria for the selection of content for physical education programs.

**KNES 492 History of the Sportswoman in American Organizations (3)** Prerequisite: KNES293. Also offered as WMST492. Credit will be granted for only one of the following: KNES492 or WMST492. Women's involvement in and contributions to America's sporting culture, especially in the 19th and 20th Centuries until enactment of Title IX. The interactions among historical perceptions of women's roles, responsibilities, and potential and their sporting lives; the effects of role stereotyping and opportunities for and directions taken in developing sport organizations. Other issues affecting women's involvement in institutional sport.

**KNES 496 Quantitative Methods (3)** Statistical techniques most frequently used in research pertaining to physical education. Effort is made to provide the student with the necessary skills and to acquaint the student with the interpretations and applications of these techniques.

**KNES 497 Independent Studies Seminar (3)** Prerequisite: ENGL391, ENGL393, ENGL394, or ENGL395; and STAT100 (or equivalent ). 100 semester hours. Senior standing. For KNES majors only. Discussions of contemporary issues vital to the discipline, critiques of research in the student's area/areas of special interest, completion of a major project where the student will be asked to demonstrate the ability to carry out investigative processes in problem solving and critical writing under faculty direction.

**KNES 498 Special Topics in Kinesiology (3)** Prerequisite: permission of department. Repeatable when the subject matter is different. Topics of special interest in areas not covered by regularly scheduled courses.

### KORA – Korean

**KORA 101 Elementary Korean I (3)** Prerequisite: permission of department. Introduction to the Korean language. Primary emphasis on oral skills, but Hangul, the Korean alphabet, will also be introduced. For students with no Korean background.

**KORA 102 Elementary Korean II (3)** Prerequisite: KORA101 or equivalent. Continued training in elementary spoken and written Korea. Instructor permission required for new students.

**KORA 201 Intermediate Korean I (3)** Prerequisite: KORA102 or permission of instructor. An intermediate-level course designed for non-Heritage students. It begins the second year of instruction in the University's two-track Korean Program.

**KORA 202 Intermediate Korean II (3)** Prerequisite: KORA201 or permission of instructor. The second stage of an intermediate-level course designed for non-Heritage students. It continues the second year of instruction in the University's two track Korean Program.

**KORA 211 Introductory Reading for Speakers of Korean I (3)** Not open to students who have completed three or more years of Korean schooling. Designed to improve the language skills of students already conversant in Korean; instruction entirely in Korean; introduction in hangul; reading and writing of simple journal entries.

**KORA 212 Introductory Reading for Speakers of Korean II (3)** Prerequisite: KORA211. Not open to students who have completed six or more years of Korean schooling. Continuation of KORA 211; grammar, style, usage, and vocabulary of written Korean.

**KORA 241 History of the Korean Language (3)** The origins of the Korean language and its development from earliest recorded times to the present. The relationship of Korean to other languages. In English.

**KORA 242 Introduction to Korean Linguistics (3)** An introduction to the sound system and grammatical structure of the modern Korean language; Korean writing and orthography; Korean language and society, with an emphasis on speech styles. In English.

**KORA 311 Korean for Heritage Speakers, Advanced-Low I (3)** Prerequisite: KORA212 or permission of instructor. Begins the second year of Heritage-language instruction in the University's two-track Korean Program.

**KORA 312 Korean for Heritage Speakers, Advanced-Low II (3)** Prerequisite: KORA311 or permission of instructor. Concludes the second year of the Heritage-language instruction in the University's two-track Korean Program.

**KORA 499 Independent Study Korean (1-3)** Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

### LARC – Landscape Architecture

**LARC 120 Digital Fundamentals (2)** Prerequisite: Permission of LARC program. For LARC majors only. Not open to students who have completed LARC489A. Credit will be granted for only one of the following: LARC120 or LARC489A. Formerly LARC 489A. An introduction to fundamental computer tools and techniques commonly used in design communication and landscape architecture practice. Non-drafting computer tools will be used to orient basic digital image capture, manipulation, and presentation formatting.

**LARC 140 Graphic Fundamentals Studio (4)** Two hours of lecture and four hours of laboratory per week. Prerequisite: Permission of LARC program. Recommended: LARC160 (concurrently). For LARC majors only. Formerly LARC 150. Basic techniques and application of various media for graphic communication associated with landscape architecture.

**LARC 141 Design Fundamentals Studio (4)** Two hours of lecture and four hours of laboratory per week. Prerequisite: LARC140 and permission of LARC program. Recommended: LARC263 (concurrently). Sophomore standing. For LARC majors only. Formerly LARC 161. Fundamentals of basic design focusing on creative problem solving associated with landscape architecture.

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**LARC 160 Introduction to Landscape Architecture (3)** Two hours of lecture and one hour of discussion/recitation per week. History, theory, philosophy and current practice of the profession of landscape architecture. Explores the interactive relationship between humans and their environment by examining people's perceptions of and changing attitude towards the landscape, as well as, an examination of how these are related to ecological and cultural influences.

**LARC 221 Digital Design Tools (3)** Prerequisite: LARC120, LARC141. Recommended: LARC240, LARC265. Sophomore standing. For LARC majors only. The development and application of computing skills as used by the landscape architecture profession. This Computer-Aided Design and Drafting (CADD) course develops computer drafting using a variety of software programs. It also introduces students to Geographic Information Systems (GIS) mapping technologies.

**LARC 240 Graphic Communication and Design Studio (4)** Two hours of lecture and four hours of laboratory per week. Prerequisites: LARC141 and LARC263. Corequisites: LARC221 and LARC265. Sophomore standing. For LARC majors only. Formerly LARC 260. Exploration of graphic presentation techniques and original concept development for landscape architecture planning and design.

**LARC 263 History of Landscape Architecture (3)** Formerly LARC 370. A survey of landscape architecture history from the ancient Western civilizations to the twentieth century with consideration of parallel developments in the Eastern World, European Africa and the Americas.

**LARC 265 Site Analysis and Ecological Principles (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: LARC141 and Permission of LARC program. Corequisite: LARC240 and LARC221. Sophomore standing. For LARC majors only. Credit will be granted for only one of the following: LARC265 or ARCH460. Principles and methods of site analysis with an emphasis on the application of ecological principles in landscape architecture, architecture and planning.

**LARC 320 Principles of Site Engineering (3)** Two hours of lecture and four hours of laboratory per week. Prerequisites: LARC221 and Permission of LARC program. Corequisite: LARC340. Junior standing. For LARC majors only. Also offered as PLSC320 (formerly HORT320). Formerly LARC 364. The study and application of landscape construction principles as applied to grading, drainage, site layout, storm water management, and vehicular and pedestrian circulation.

**LARC 321 Landscape Structures and Materials (3)** Two hours of lecture and four hours of laboratory per week. Prerequisites: LARC320 and LARC340. For LARC majors only. Formerly LARC 465. An examination of the use, properties, and detailing of materials used in landscape construction. The use and design of structures in the landscape.

**LARC 340 Site Planning and Design Studio (5)** Two hours of lecture and six hours of laboratory per week. Prerequisites: LARC221, LARC240, and LARC265. Corequisite: LARC320. Junior standing. For LARC majors only. Formerly LARC 466. An examination of the influence of landscape character and site features (natural and cultural) on landscape architecture, architecture and planning through application in the studio setting.

**LARC 341 Regional Design Studio (5)** Two hours of lecture and six hours of laboratory per week. Prerequisites: LARC320 and LARC340. Junior standing. For LARC majors only. Formerly LARC 361. An examination of the landscape architect's role within the interdisciplinary regional design field incorporating GIS technologies, spatial modeling, and the regional design process.

**LARC 388 Honors Thesis Research (3-6)** Prerequisite: Admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

**LARC 389 Internship in Landscape Architecture (3)** Prerequisites: LARC221, LARC240, and LARC265. Junior standing. For LARC majors only. Repeatable to 6 credits. A supervised internship where students earn credit for work experience related to their career goals. Each student must keep a work log, work on a special project, and produce a report related to this project. An evaluation from the external supervisor of the project is required. Participation requires application to the internship advisor in the preceding semester.

**LARC 398 Seminar (1)**

**LARC 420 Professional Practice (3)** Prerequisite: LARC321. For LARC majors only. Formerly LARC 467. An introduction to and comparative study of the professional concerns of design firms. Focus on planning, legal, ethical, marketing and management considerations of interdisciplinary practices.

**LARC 440 Urban Studio Design (5)** Two hours of lecture and six hours of laboratory per week. Prerequisites: LARC321, LARC340, and LARC341. For LARC majors only. Formerly LARC 462. The landscape architect's role within the interdisciplinary urban design process, focusing on urban site design issues. Pedestrian friendly site design and the future of sustainable development will be studied.

**LARC 450 Environmental Resources (3)** Prerequisite: NRSC200 or permission of department. A review of ecosystems and an examination of planning strategies for preservation, conservation, management and development of sensitive natural and cultural landscape resources in the mid-Atlantic region.

**LARC 451 Sustainable Communities (3)** Explores concepts, strategies and examples of community design which address the needs of a growing population while preserving the environment and its resources.

**LARC 460 Landscape and Identity: Placemaking Across World Cultures (3)** Prerequisite: LARC240 or permission of department. Junior standing. Not open to students who have completed LARC489P. Credit will be granted for only one of the following: LARC460 or LARC489P. Formerly LARC 489P. A cross cultural experience that emphasizes the integration of cultural diversity, individual identity and placemaking skills introduced through the landscape architecture curriculum. Explores the landscape as intimately connected to their individual selves and to the collective sense of community. Examines how the mixture of social-cultural systems, on a global scale, impacts the way we shape our built environment. Investigates these phenomena theoretically and analytically through team and individual projects, lectures, films, discussions and presentations.

**LARC 470 Landscape Architecture Seminar (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisites: LARC321 and LARC341. Corequisite: LARC440. Senior standing. For LARC majors only. A combination of self-directed study, seminar, and lecture formats. An introduction to aspects of research methods, critical analysis, and proposal writing with a focus on urban and community design.

**LARC 471 Capstone Studio: Community Design (5)** Two hours of lecture and six hours of laboratory per week. Prerequisites: LARC440 and LARC470. Senior standing. For LARC majors only. A capstone experience that emphasizes the integration of critical thinking skills and methodologies introduced throughout the landscape architecture curriculum. Students apply design and analysis methodologies, evaluate alternative solutions, involve community residents and engage in final design development, using the master plan and site design process, report writing, and oral and graphic presentations. Final presentations are open to the university and the community.

**LARC 489 Special Topics in Landscape Architecture (1-4)** Prerequisite: permission of department. Repeatable to 4 credits if content differs. Credit according to time scheduled and organization of course. A lecture and/or studio course organized as an in-depth study of a selected specialization of landscape architecture not covered by existing courses.

**LARC 499 Independent Studies in Landscape Architecture (1-4)** Prerequisite: 12 credits in LARC or permission of department. For LARC and NRSC majors only. Repeatable to 4 credits if content differs. Independent studies in landscape architecture including field, studio or library research under the direction of a faculty member.

### LASC – Certificate in Latin American Studies

**LASC 234 Issues in Latin American Studies I (3)** Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN234 and PORT234. Credit will be granted for only one of the following: LASC234 or SPAN234 or PORT234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions.

**LASC 235 Issues in Latin American Studies II (3)** Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN235 and PORT235. Credit will be granted for only one of the following: LASC235 or SPAN235 or PORT235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of LASC/PORT/SPAN 234, but completion of 234 is not a prerequisite.

**LASC 403 Research and Information Sources in Latin American Studies (1)** Two hours of lecture per week. Corequisite: LASC458; Recommended: LASC234 and LASC235. Senior standing. Also offered as SPAN403. A foundational course in Latin American Studies information sources. Students will devise a search strategy and explore reference materials available to the Latin American Studies researcher.

**LASC 423 Research Sources and Methods in Latin America Studies (3)** Research methodologies in Latin American studies.

**LASC 448 Special Topics in Latin American Studies (3)** Junior standing. Repeatable to 6 credits if content differs. Intensive study of a selected topic related to Latin American Studies.

**LASC 458 Senior Capstone Course in Latin American Studies (3)** Three hours of lecture per week. Prerequisites: LASC234 and LASC235 or permission of department. Recommended: LASC403. Senior standing. For LASC majors only. Also offered as SPAN458. Capstone course for advanced students in the Latin American Studies Certificate Program or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

### LATN – Latin

**LATN 101 Elementary Latin I (4)** Four hours of discussion/recitation per week. A student who has two units of Latin in high school may register for LATN101 for the purposes of review, but ordinarily not for credit.

**LATN 102 Elementary Latin II (4)** Four hours of discussion/recitation per week. Prerequisite: LATN101 at UMCP or permission of department.

**LATN 120 Intensive Latin (4)** Prerequisite: permission of department. Not open for credit to students with credit for LATN102. Elements of Latin grammar and vocabulary; elementary reading. The first year's study of Latin compressed into a single semester.

**LATN 201 Intermediate Latin (4)** Prerequisite: LATN102 at UMCP or permission of department. Formerly LATN 203.

**LATN 220 Intermediate Intensive Latin (4)** Prerequisite: LATN102, or LATN120, or equivalent. Review of Latin grammar; reading in prose and poetry from selected authors.

**LATN 301 Plautus (3)** Plautine drama. Literary, linguistic and socio-cultural aspects.

**LATN 302 Ovid (3)** Major works of Ovidian poetry. Literary and moral atmosphere of Augustan age.

**LATN 303 Petronius (3)** Reading and analysis of Petronius' Satyricon with an emphasis on the literary climate of the Neronian Age and on the emergence of the novel as a literary genre.

**LATN 304 Cicero and Sallust (3)** Prerequisite: LATN201 or equivalent. Selected speeches of Cicero and selections from the historian Sallust. Rhetorical, social and political context. Readings will be in Latin.

**LATN 351 Horace and Catullus (3)** Prerequisite: LATN201 or equivalent.

**LATN 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**LATN 402 Tacitus (3)**

**LATN 403 Roman Satire (3)**

**LATN 405 Lucretius (3)**

**LATN 410 Latin Historians (3)** Latin historical writing as a literary genre. Influences, style, and literary techniques.

**LATN 415 Vergil's Aeneid (3)** Formerly LATN 305. Vergil's Aeneid: readings of selections in Latin and of the entire epic in English translation along with critical essays.

**LATN 420 Cicero and Caesar (3)** Reading and analysis of texts by M. Tullius Cicero and C. Iulius Caesar, with emphasis on the relationships between them and on the period of the Civil War.

**LATN 424 Silver Age Latin (3)** Reading and analysis of selected texts. Emphasis on the role of Nero and Seneca in literary developments.

**LATN 472 Historical Development of the Latin Language (3)** Credit will be granted for only one of the following: LATN472 or LING431. An analysis of the development of the Latin language from archaic times to the Middle Ages.

**LATN 488 Latin Readings (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. The reading of one or more selected Latin authors from antiquity through the Renaissance. Reports.

**LATN 499 Independent Study in Latin Language and Literature (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

## LBSC – Library Science

**LBSC 208 Special Topics in Information Studies (3)** Repeatable to 6 credits if content differs. Special topics in aspects of information use, technology, and policy.

**LBSC 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student’s internship sponsor. Junior standing.

**LBSC 488 Recent Trends and Issues in Library and Information Services (1-3)** Repeatable to 9 credits. Discussions of recent trends and issues in library and information services. Designed for practicing professionals.

**LBSC 499 Workshops, Clinics, and Institutes (1-9)** Repeatable to 9 credits. Workshops, clinics, and institutes developed around specific topics or problems. Primarily for practicing librarians.

## LGBT – Lesbian Gay Bisexual Transgender Studies

**LGBT 200 Introduction to Lesbian, Gay, Bisexual, and Transgender Studies (3)** Not open to students who have completed WMST298E. Credit will be granted for only one of the following: LGBT200 or WMST298E. Formerly WMST 298E. An interdisciplinary study of the historical and social contexts of personal, cultural and political aspects of LGBT life. Sources from a variety of fields, such as anthropology, history, psychology, sociology, and women’s studies, focusing on writings by and about LGBT people.

**LGBT 291 International Perspectives on Lesbian and Gay Studies (3)** Also offered as CMLT291. Not open to students who have completed CMLT291. Credit will be granted for only one of the following: CMLT291 or LGBT291. Exploration of the construction and representation of sexualities in culture around the globe, with particular emphasis on literature and media.

**LGBT 298 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3)** Repeatable to 9 credits if content differs. Study of particular themes and issues in LGBT studies.

**LGBT 327 Lesbian, Gay, Bisexual, and Transgender Studies Film and Video (3)** Junior standing. Comparative analysis of forms, themes, and the politics of representation in film and video by and/or about LGBT people.

**LGBT 350 Lesbian, Gay, Bisexual, and Transgender People and Communication (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: LGBT200 (formerly: WMST298E) and permission of program. Study of differences, stereotypes, and values distinguishing LGBT people and of effective means of communicating such differences to non-LGBT people. Emphasis on contemporary LGBT life and on the development of didactic skills. Preparation and presentation of forums on LGBT people; facilitation of workshops in various outreach locations (residence halls, Greek system, classes).

**LGBT 359 Special Topics in Lesbian, Gay, Bisexual, and Transgender Literatures (3)** Prerequisite: Two lower-level English courses, at least one in literature. Repeatable to 9 credits if content differs. Also offered as ENGL359. Study of selected writers or particular themes in Lesbian, Gay Bisexual, and Transgender literatures.

**LGBT 386 Lesbian, Gay, Bisexual, and Transgender Community Organization (3-6)** Internship Prerequisite: 9 credits in LGBT studies and permission of program. Supervised internship experience with a community organization that expressly serves lesbian, gay, bisexual, and transgender people. Students will be expected to relate course material to experience in an analysis of an organization’s activities.

**LGBT 407 Gay and Lesbian Philosophy (3)** Also offered as PHIL407. Not open to students who have completed PHIL407. Credit will be granted for only one of the following: PHIL407 or LGBT407. An examination in historical and social context of personal, cultural, and political aspects of gay and lesbian life, paying particular attention to conceptual, ontological, epistemological, and social justice issues.

**LGBT 448 Special Topics in Lesbian, Gay, Bisexual, and Transgender Studies (3)** Prerequisite: LGBT200 or permission of program. Junior standing. Repeatable to 9 credits if content differs. In-depth study of particular themes and issues in LGBT studies.

**LGBT 459 Selected Topics in Sexuality and Literature (3)** Three hours of lecture per week. Prerequisite: Two lower-level English courses, at least one in literature. Repeatable to 9 credits if content differs. Also offered as ENGL459. Detailed study of sexuality as an aspect of literary and cultural expression.

**LGBT 465 Theories of Sexuality and Literature (3)** Three hours of lecture per week. Prerequisite: Two lower-level English courses, at least one in literature. Also offered as ENGL465. Not open to students who have completed ENGL465. Credit will be granted for only one of the following: ENGL465 or LGBT465. An in-depth study of the ways in which sexuality and sexual difference create or confound the conditions of meaning in the production of literary texts. Attention to psychoanalysis, history of sexuality, feminist theory, and other accounts of sexual identity.

**LGBT 488 Seminar in Lesbian, Gay, Bisexual, and Transgender Studies (1-3)** Prerequisites: 9 credits in LGBT Studies and permission of program. Recommended: LGBT200 and ENGL265 or CMLT291. Repeatable to 09 credits if content differs. Not open to students who have completed CMLT498Y. Formerly CMLT 498Y. Developments in theories and methods of LGBT Studies, with emphasis upon interaction between the humanities and the social sciences in the elaboration of this interdisciplinary area of scholarship.

**LGBT 494 Lesbian Communities and Differences (3)** Prerequisite: One course in Women’s Studies, preferably WMST200. Also offered as WMST494. Not open to students who have completed WMST494. Credit will be granted for only one of the following: WMST494 or LGBT494. The meanings of lesbian communities across many lines of difference. Using lesbian feminists of the 1970s as a starting point, we will look both back and forward in history, tracing changes and exploring the meanings of these in their social and historical contexts.

**LGBT 499 Independent Study (1-3)** Prerequisite: LGBT200 and permission of department. Senior standing. Repeatable to 6 credits if content differs. Directed research and analysis in LGBT Studies on a topic selected by the student.

## LING – Linguistics

**LING 200 Introductory Linguistics (3)** Not open to students who have completed ANTH371 or HESP120. Ways of studying human language; basic concepts of modern linguistic analysis (sound systems, word formation, syntax, meaning). The nature of human language; the social aspects of language; language change; dialects; writing systems; language universals, etc.

**LING 210 Structure of American Sign Language (3)** Overview of phonology, morphology and syntax of American Sign Language. History of the language and the unique social, political and linguistic situation of the deaf.

**LING 240 Language and Mind (3)** The study of language as a cognitive phenomenon. Ways of representing people’s knowledge of their native language, ways in which that knowledge is attained naturally by children, and how it is used in speaking and listening. Relevant philosophical literature. Relationship to study of other cognitive abilities: reasoning, perception, sensory-motor development.

**LING 311 Syntax I (3)** Prerequisite: LING240. Basic concepts, analytical techniques of generative syntax, relation to empirical limits imposed by viewing grammars as representations of a component of human mind. Aspects of current theories.

**LING 312 Syntax II (3)** Prerequisite: LING311. Continuation of LING 311. Development of theories of syntax. Criteria for revising theories. Methods and strategies of “scientific” efforts to explain natural phenomena.

**LING 321 Phonology I (3)** Prerequisite: LING240. Properties of sound systems of human languages, basic concepts and analytical techniques of generative phonology. Empirical limits imposed by viewing grammars as cognitive representations. Physiological properties and phonological systems; articulatory phonetics and distinctive feature theory.

**LING 322 Phonology II (3)** Prerequisite: LING321. Continuation of LING 321. Further investigation of phonological phenomena and phonological theory. Revising and elaborating the theory of the phonological representation; interaction of phonology and morphology.

**LING 330 Historical Linguistics (3)** A traditional presentation of language change. Language types and families, sounds and writing systems, grammatical categories. Reconstruction of proto-languages by internal and comparative methods.

**LING 350 Philosophy of Language (3)** Prerequisite: PHIL170 or PHIL173 or PHIL371; or LING311. The nature and function of language and other forms of symbolism from a philosophical perspective.

**LING 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student’s internship sponsor. Junior standing.

**LING 410 Grammar and Meaning (3)** Prerequisite: LING 311 or permission of instructor. The basic notions of semantic theory: reference, quantification, scope relations, compositionality, thematic relations, tense and time, etc. The role these notions play in grammars of natural languages. Properties of logical form and relationship with syntax.

**LING 411 Comparative Syntax (3)** Prerequisite: LING312. Comparison of data from a variety of languages with respect to some aspect of current versions of syntactic theory in order to investigate how parameters of universal grammar are fixed differently in different languages. Attempts to work out fragments of grammars for some languages.

**LING 419 Topics in Syntax (3)** Repeatable to 12 credits if content differs.

**LING 420 Word Formation (3)** Prerequisite: LING322. Definition of shape and meaning of possible words, both across languages and within particular languages. Interaction between principles of word formation and other components of a grammar: syntax, logical form and phonology.

**LING 421 Advanced Phonology (3)** Prerequisite: LING322. Topics in current phonological theory, as they relate to data from the sound systems of various languages. Segmental and prosodic analysis. Discussion of autosegmental theory, metrical theory, etc.

**LING 429 Topics in Phonology (3)** Repeatable to 6 credits if content differs.

**LING 430 Language Change (3)** Prerequisite: LING240. Changes in grammars from generation to generation. Consequences for the theory of grammars. Traditional work on historical change.

**LING 439 Topics in Diachronic Linguistics (3)** Repeatable to 6 credits if content differs.

**LING 440 Grammars and Cognition (3)** Relationship between the structure, development and functioning of grammars and the structure, development and functioning of other mental systems. Interpretations of experimental and observational work on children’s language, aphasia, speech production and comprehension.

**LING 443 Programming for Linguistics (3)** Prerequisite: permission of department. A one-semester introduction to computer programming, geared for linguists and others who are not computer scientists. Not intended for students who already have significant programming experience.

**LING 444 Child Language (3)** Prerequisite: LING200 or LING240. Examines children’s language development from the perspective of Chomsky’s ‘Universal Grammar’. Evaluates which parts of children’s knowledge are innate, and which parts are learned from the environment. This issue motivates discussion of a variety of topics including children’s knowledge of the lexicon and word meaning, grammatical structure, and semantics.

**LING 451 Grammars and Variation (3)** Prerequisite: LING311. Grammars and the use of language in a variety of styles: formal, casual, literary, etc. Consequences for concepts of grammars. Variation theory. Literary styles.

**LING 453 Mathematical Approaches to Language (3)** Prerequisite: LING312. The aspects of mathematics used in linguistic discussions: recursion theory, Chomsky’s hierarchy of grammars, set theory, Boolean algebra, finite state grammars, context-free grammars, etc. Applications to theories of grammars. Formalizations of grammatical theories.

**LING 455 Second Language Acquisition (3)** Prerequisite: LING311. Examines second language acquisition from the perspective of Chomsky’s ‘Universal Grammar’. Relationship between theories of grammars, first language acquisition by children and the learning of second languages by adults.

**LING 460 Diversity and Unity in Human Languages (3)** Fundamentals of grammatical typology as they relate to issues in social attitudes towards language. Linguistic structure of standard and non-standard languages and dialects. Relationship of different writing systems to linguistic structure. Issues in bilingualism and multilingualism.

**LING 487 Computer Science for Cognitive Studies (3)** Also offered as PHIL487. Credit will be granted for only one of the following: LING487 or PHIL487. List processing and discrete mathematics. Preparation for the study of artificial intelligence and other mathematically oriented branches of cognitive studies. Intended for students of linguistics, philosophy, and psychology. LISP computer language, graphs and trees, the concept of computational complexity, search algorithms.

**LING 499 Directed Studies in Linguistics (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Independent study or research on language under the supervision of a faculty member.



## 226 Approved Courses

### MATH – Mathematics

**MATH 003 Developmental Mathematics (3)** Six hours of laboratory per week. Recommended: For students who plan to take MATH110, MATH111, MATH113, MATH115 or STAT100, but are not currently qualified to do so. MATH 003 is a review of Intermediate High School Algebra intended for students preparing for one of the credit bearing Fundamental Studies Math Courses. It is taught in special computer labs using a self-paced computer program. The curriculum will be geared toward the student's level of algebra skills and eventual goals. There is a special fee for the course in addition to the regular tuition charge. The course does not carry any credit toward any degree at the University. The course is repeatable. Topics will be chosen from exponents, polynomials, linear equations, quadratic equations as well as polynomial, rational, exponential and logarithm functions and elementary probability or statistics, depending on the student.

**MATH 010 Algebra for MATH 110 (3)** Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH 110. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH 110, the same semester, which also meets 5 days per week. Continuation in MATH 110 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include linear equations, linear inequalities, operations on polynomials, factoring, solutions of quadratic equations, as well as exponential and logarithm functions. MATH 010 does not carry any credit toward any degree at the University, nor is it graded. It leads to either MATH 110 or MATH 003, both of which are graded.

**MATH 011 Algebra for MATH 111 (3)** Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH 111. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH 111, the same semester, which also meets 5 days per week. Continuation in MATH 111 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations, quadratic equations, as well as polynomial, rational, exponential and logarithm functions, Venn diagrams, permutations and combinations. MATH 011 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH 111 (or MATH 113 or MATH 110), or MATH 003, all of which are graded.

**MATH 013 Algebra for MATH 113 (3)** Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH 113. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH 113, the same semester, which also meets 5 days per week. Continuation in MATH 113 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations, quadratic equations, as well as polynomial, rational, exponential and logarithm functions. MATH 013 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH 113 (or MATH 110), or MATH 003, all of which are graded.

**MATH 015 Algebra for MATH 115 (3)** Five hours of lecture per week. There is a special fee for this class in addition to the regular tuition charge. A review of Intermediate High School Algebra intended for students preparing for MATH 115. It is taught 5 days per week for the first 5 weeks, then leads directly into a special section of MATH 115, the same semester, which also meets 5 days per week. Continuation in MATH 115 is conditional on the student passing the MATHEMATICS PLACEMENT EXAM at the appropriate level. Topics include exponents, polynomials, linear equations in one and two variables, quadratic equations, as well as polynomial, rational, exponential and logarithm functions. MATH 015 does not carry any credit toward any degree at the University, nor is it graded. It leads directly to MATH 115 (or MATH 111 or MATH 113 or MATH 110), or MATH 003, all of which are graded.

**MATH 110 Elementary Mathematical Models (3)** Prerequisite: permission of department based on satisfactory score on the MATHEMATICS PLACEMENT EXAM, or satisfactory completion of MATH003 with the appropriate eligibility. Not open to students majoring in mathematics, engineering, business, life sciences, and the physical sciences. Not open to students who have completed MATH 140, MATH 220, or any MATH or STAT course for which MATH 140 or MATH 220 is a prerequisite. Credit will be granted for only one of the following: MATH110, MATH112, or MATH113. Topics include simple and compound interest; recursion for computing balances; installment loans and amortization; approximating data by linear models; analysis of applications to real-world collections of data; probability; conditional probability; independence; expected value; graphing and analysis of systems of inequalities; linear programming and applications.

**MATH 111 Introduction to Probability (3)** Prerequisite: permission of department based on satisfactory score on the MATHEMATICS PLACEMENT EXAM, or satisfactory completion of MATH 003 with the appropriate eligibility or MATH110. Not open to students majoring in mathematics, engineering or the physical sciences. Not open to students who have completed STAT100 or any MATH or STAT course with a prerequisite of MATH141. Credit will be granted for only one of the following: MATH111 or STAT100. Logic, Boolean algebra, counting, probability, random variables, expectation applications of the normal probability distribution.

**MATH 112 College Algebra with Applications and Trigonometry (3)** Prerequisite: permission of department, based on math placement exam or MATH003 performance. Not open to students who have completed MATH140 or MATH220 or any course for which MATH140 or MATH220 is a prerequisite. Credit will be granted for only one of the following: (i) MATH112, or (ii) MATH113, or (iii) (MATH110 and MATH115). Graphs and applications of elementary functions, including polynomial, rational, exponential and logarithmic functions. Systems of equations. Triangle trigonometry. The course differs from MATH 113 only in that it covers a substantial amount of trigonometry in place of material on matrices, linear programming, sequences and series. MATH 112 is strongly recommended for students in Architecture, Landscape Architecture, Life Sciences, and those needing PHYS 141.

**MATH 113 College Algebra with Applications (3)** Prerequisite: permission of department based on satisfactory score on the MATHEMATICS PLACEMENT EXAM, or satisfactory completion of MATH003 with the appropriate eligibility, or MATH110. Not open to students who have completed MATH140, MATH220, or any course for which MATH140 or MATH220 is a prerequisite. Credit will be granted for only one of the following: MATH112; or MATH113; or (MATH110 and MATH115). Preparation for MATH220. Graphs and applications of elementary functions including: polynomial, rational, exponential and logarithmic functions. Systems of linear equations and linear inequalities used to solve representative problems in linear programming. Matrices and matrix operations including inverse. Sequences.

**MATH 115 Precalculus (3)** Prerequisite: permission of department based on satisfactory score on the MATHEMATICS PLACEMENT EXAM, or satisfactory completion of MATH003 with the appropriate eligibility, or MATH113. Not open to students who have completed MATH140 or any MATH or STAT course for which MATH140 is a prerequisite. Credit will be granted for only one of the following: MATH113 or MATH115. Preparation for MATH 220 or MATH 140. Elementary functions and graphs: polynomials, rational functions, exponential and logarithmic functions, trigonometric functions. Algebraic techniques preparatory for calculus.

**MATH 140 Calculus I (4)** Prerequisite: permission of department based on 3 1/2 years of college preparatory mathematics (including trigonometry) and a satisfactory score on the MATHEMATICS PLACEMENT EXAM, or MATH115 with a grade of C or better. Credit will be granted for only one of the following: MATH140 or MATH220. Introduction to calculus, including functions, limits, continuity, derivatives and applications of the derivative, sketching of graphs of functions, definite and indefinite integrals, and calculation of area. The course is especially recommended for science, engineering and mathematics majors.

**MATH 141 Calculus II (4)** Prerequisite: A grade of C or better in MATH140 or equivalent. Credit will be granted for only one of the following: MATH141 or MATH221. Continuation of MATH 140, including techniques of integration, improper integrals, applications of integration (such as volumes, work, arc length, moments), inverse functions, exponential and logarithmic functions, sequences and series.

**MATH 199 Special Topics in Mathematics (3)** Prerequisite: permission of department. Many games have a mathematical component. We will introduce several games, play them, and investigate the underlying mathematics. Students will work in teams on projects that involve developing strategies for new games.

**MATH 212 Elements of Numbers and Operations (3)** Prerequisite: One year of college preparatory algebra. Restricted to elementary, early childhood, and special education majors. Not open to students who have completed MATH210 with a grade of C- or better. Credit will be granted for only one of the following: MATH210 or MATH212. Topics from algebra and number theory designed to provide insight into arithmetic: sets, functions, number systems, number theory; operations with natural numbers, integers, rational numbers; linear equations.

**MATH 213 Elements of Geometry and Measurement (3)** Prerequisite: MATH212. Restricted to elementary and early childhood education majors. Not open to students who have completed MATH211 with a grade of C- or better. Credit will be granted for only one of the following: MATH211 or MATH213. Properties of geometric objects in two and three dimensions; parallel lines, curves and polygons; ratio, proportion, similarity; transformational geometry and measurement, constructions, justifications and proofs.

**MATH 214 Elements of Probability and Statistics (3)** Prerequisite: MATH212. Restricted to elementary and early childhood education majors. Not open to students who have completed MATH 211 with a grade of C- or better. Credit will be granted for only one of the following: MATH211 or MATH214. Permutations and combinations; probability; collecting and representing data; using statistics to analyze and interpret data.

**MATH 220 Elementary Calculus I (3)** Prerequisite: permission of department based on 3 1/2 years of college preparatory mathematics (including trigonometry) and satisfactory performance on the MATHEMATICS PLACEMENT EXAM, or MATH113, or MATH115. Not open to students majoring in mathematics, engineering or the physical sciences. Credit will be granted for only one of the following: MATH140 or MATH220. Basic ideas of differential and integral calculus, with emphasis on elementary techniques of differentiation and applications.

**MATH 221 Elementary Calculus II (3)** Prerequisite: MATH220, or MATH140, or equivalent. Not open to students majoring in mathematics, engineering or the physical sciences. Credit will be granted for only one of the following: MATH141 or MATH221. Differential and integral calculus, with emphasis on elementary techniques of integration and applications.

**MATH 240 Introduction to Linear Algebra (4)** Prerequisite: MATH141 or equivalent. Credit will be granted for only one of the following: MATH240, MATH341, MATH400, or MATH461. Basic concepts of linear algebra: vector spaces, applications to line and plane geometry, linear equations and matrices, similar matrices, linear transformations, eigenvalues, determinants and quadratic forms.

**MATH 241 Calculus III (4)** Prerequisite: MATH141. Credit will be granted for only one of the following: MATH241 or MATH340. Introduction to multivariable calculus, including vectors and vector-valued functions, partial derivatives and applications of partial derivatives (such as tangent planes and Lagrange multipliers), multiple integrals, volume, surface area, and the classical theorems of Green, Stokes and Gauss.

**MATH 242 Numerical Techniques in Engineering (3)** Prerequisite: MATH141; and ENEE114 or CMSC106 or CMSC131 or equivalent. Restricted to Engineering, Math, and Physics majors only. Also offered as ENEE241. Credit will be granted for only one of the following: ENES240 or ENEE241 or MATH242. Introduction to error analysis, conditioning and stability of algorithms. Numerical solution of nonlinear equations. Vector spaces and linear transformations. Matrix algebra. Gaussian elimination. LU factorization, matrix inversion. Similarity transformations and diagonalization. Iterative computation of eigenvalues. Interpolation; splines; data fitting. Numerical integration.

**MATH 246 Differential Equations for Scientists and Engineers (3)** Prerequisite: MATH141; and any one of the following: MATH240 or ENES102 or PHYS161 or PHYS171. Credit will be granted for only one of the following: MATH246 or MATH341. An introduction to the basic methods of solving ordinary differential equations. Equations of first and second order, linear differential equations, Laplace transforms, numerical methods and the qualitative theory of differential equations.

**MATH 274 History of Mathematics (3)** Three hours of lecture per week. Prerequisite: MATH140 or MATH220. An overview of aspects in the history of mathematics from its beginning in the concrete problem solving of ancient times through the development of abstraction in the 19th and 20th centuries. The course considers both mathematical ideas and the context in which they developed in various civilizations around the world.

**MATH 299 Selected Topics in Mathematics (1-3)** Prerequisite: permission of department. Topics of special interest under the general guidance of the departmental committee on undergraduate studies.

**MATH 310 Introduction to Analysis (3)** Prerequisite: MATH141. Corequisite: MATH241. Math majors may not use this course to satisfy an upper-level requirement. For MATH majors only. To prepare students for MATH 410 Advanced Calculus. To develop the students' ability to construct a rigorous proof of a mathematical claim. Students will also be made aware of mathematical results that are of interest to those wishing to analyze a particular mathematical model. Topics will be drawn from logic, set theory, structure of the number line, elementary topology, metric spaces, functions, sequences and continuity.

**MATH 340 Multivariable Calculus, Linear Algebra and Differential Equations (4)** I (Honors) Prerequisite: MATH140; MATH141; and permission of department. Credit will be granted for only one of the following: MATH241 or MATH340. First semester of the MATH 340-341 sequence which gives a unified and enriched treatment of multivariable calculus, linear algebra and ordinary differential equations, with supplementary material from subjects such as differential geometry, Fourier series and calculus of variations. Students completing MATH 340-341 will have covered the material of MATH 240, MATH 241, and MATH 246, and may not also receive credit for MATH 240, MATH 241 or MATH 246.

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**MATH 341 Multivariable Calculus, Linear Algebra, Differential Equations (4) II** (Honors) Prerequisite: MATH340. A student receiving credit for MATH341 cannot receive credit for MATH240, MATH246, MATH400, or MATH461. A continuation of MATH 340.

**MATH 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor and student's internship sponsor. Junior standing.

**MATH 400 Vectors and Matrices (3)** Prerequisite: MATH221 or equivalent. Not open to students in the CMPS or Engineering Colleges. Credit will be granted for only one of the following: MATH240, MATH341, MATH400, or MATH461. The essentials of matrix theory needed in the management, social and biological sciences. Main topics: systems of linear equations, linear independence, rank, orthogonal transformations, eigenvalues, the principal axes theorem. Typical applications: linear models in economics and in statistics, Markov chains, age-specific population growth.

**MATH 401 Applications of Linear Algebra (3)** Prerequisite: MATH 240 or MATH 461. Various applications of linear algebra: theory of finite games, linear programming, matrix methods as applied to finite Markov chains, random walk, incidence matrices, graphs and directed graphs, networks and transportation problems.

**MATH 402 Algebraic Structures (3)** Prerequisite: MATH240 or equivalent. Not open to mathematics graduate students. Credit will be granted for only one of the following: MATH402 or MATH403. For students having only limited experience with rigorous mathematical proofs. Parallels MATH 403. Students planning graduate work in mathematics should take MATH 403. Groups, rings, integral domains and fields, detailed study of several groups; properties of integers and polynomials. Emphasis is on the origin of the mathematical ideas studied and the logical structure of the subject.

**MATH 403 Introduction to Abstract Algebra (3)** Prerequisite: MATH240 and MATH241; or equivalent. Credit will be granted for only one of the following: MATH402 or MATH403. Integers; groups, rings, integral domains, fields.

**MATH 404 Field Theory (3)** Prerequisite: MATH403. Algebraic and transcendental elements, Galois theory, constructions with straight-edge and compass, solutions of equations of low degrees, insolubility of the quintic equation, Sylow theorems, fundamental theorem of finite Abelian groups.

**MATH 405 Linear Algebra (3)** Prerequisite: MATH240 or MATH461. An abstract treatment of finite dimensional vector spaces. Linear transformations and their invariants.

**MATH 406 Introduction to Number Theory (3)** Prerequisite: MATH141 or permission of department. Integers, divisibility, prime numbers, unique factorization, congruences, quadratic reciprocity, Diophantine equations and arithmetic functions.

**MATH 410 Advanced Calculus I (3)** Prerequisites: MATH240 and MATH241, with grade of C or better; and permission of department. First semester of a year course. Subjects covered during the year are: sequences and series of numbers, continuity and differentiability of real valued functions of one variable, the Riemann integral, sequences of functions and power series. Functions of several variables including partial derivatives, multiple integrals, line and surface integrals. The implicit function theorem.

**MATH 411 Advanced Calculus II (3)** Prerequisite: MATH410 and permission of department. Credit will be granted for only one of the following: MATH411 or MATH412. Continuation of MATH 410.

**MATH 412 Advanced Calculus with Applications (3)** Prerequisite: MATH410 and permission of department. Not open to students who have completed MATH350 and MATH351. Credit will be granted for only one of the following: MATH411 or MATH412. Analysis in several variables, and applications, from a computational perspective.

**MATH 414 Differential Equations (3)** Prerequisites: MATH410 and MATH240; or equivalent. Existence and uniqueness theorems for initial value problems. Linear theory: fundamental matrix solutions, variation of constants formula, Floquet theory for periodic linear systems. Asymptotic orbital and Lyapunov stability with phase plane diagrams. Boundary value theory and series solutions.

**MATH 420 Mathematical Modeling (3)** Prerequisite: MATH241, MATH246, STAT400, MATH240 or MATH461; and permission of department. Also offered as AMSC420. Credit will be granted for only one of the following: AMSC420, MAPL420, or MATH420. The course will develop skills in mathematical modeling through practical experience. Students will work in groups on specific projects involving real-life problems that are accessible to their existing mathematical backgrounds. In addition to the development of mathematical models, emphasis will be placed on the use of computational methods to investigate these models, and effective oral and written presentation of the results.

**MATH 424 Introduction to the Mathematics of Finance (3)** Prerequisites: MATH141; and either STAT400 or BMGT231 and permission of department. Corequisite: BMGT343. Recommended: MATH240, MATH241 or MATH246. Credit will be granted for only one of the following: BMGT444, MATH424 or MATH498F. Formerly MATH 498F. Introduction to the mathematical models used in finance and economics with emphasis on pricing derivative instruments. Designed for students in mathematics, computer science, engineering, finance and physics. Financial markets and instruments; elements from basic probability theory; interest rates and present value analysis; normal distribution of stock returns; option pricing; arbitrage pricing theory; the multiperiod binomial model; the Black-Scholes option pricing formula; proof of the Black-Scholes option pricing formula and applications; trading and hedging of options; Delta hedging; utility functions and portfolio theory; elementary stochastic calculus; Ito's Lemma; the Black-Scholes equation and its conversion to the heat equation.

**MATH 430 Euclidean and Non-Euclidean Geometries (3)** Prerequisite: MATH141. Hilbert's axioms for Euclidean geometry. Neutral geometry: the consistency of the hyperbolic parallel postulate and the inconsistency of the elliptic parallel postulate with neutral geometry. Models of hyperbolic geometry. Existence and properties of isometries.

**MATH 431 Geometry for Computer Graphics (3)** Prerequisite: MATH240 or MATH461. Topics from projective geometry and transformation geometry, emphasizing the two-dimensional representation of three-dimensional objects and objects moving about in the plane and space. The emphasis will be on formulas and algorithms of immediate use in computer graphics.

**MATH 432 Introduction to Topology (3)** Prerequisite: MATH410 or equivalent. Metric spaces, topological spaces, connectedness, compactness (including Heine-Borel and Bolzano-Weierstrass theorems), Cantor sets, continuous maps and homeomorphisms, fundamental group (homotopy, covering spaces, the fundamental theorem of algebra, Brouwer fixed point theorem), surfaces (e.g., Euler characteristic, the index of a vector field, hairy sphere theorem), elements of combinatorial topology (graphs and trees, planarity, coloring problems).

**MATH 436 Differential Geometry of Curves and Surfaces I (3)** Prerequisites: MATH241; and either MATH240 or MATH461; and two 400-level MATH courses (not including MATH400, 461 and 478). Curves in the plane and Euclidean space, moving frames, surfaces in Euclidean space, orientability of surfaces; Gaussian and mean curvatures; surfaces of revolution, ruled surfaces, minimal surfaces, special curves on surfaces, "Theorema Egregium"; the intrinsic geometry of surfaces.

**MATH 437 Differential Forms (3)** Prerequisite: MATH241; and either MATH240 or MATH461. Recommended: One of the following - MATH403, MATH405, MATH410, MATH432, or MATH436. Introduction to differential forms and their applications, and unites the fundamental theorems of multivariable calculus in a general Stokes Theorem that is valid in great generality. It develops this theory and technique to perform calculations in analysis and geometry. Topics include an introduction to topological spaces, the Gauss-Bonnet Theorem, Gauss's formula for the linking number, and the Cauchy Integral Theorem. Applications include Maxwell's equations of electromagnetism, connections and gauge theory, and symplectic geometry and Hamiltonian dynamics.

**MATH 445 Elementary Mathematical Logic (3)** Prerequisite: MATH141. Credit will be granted for only one of the following: MATH445 or MATH450/CMSC450. Elementary development of propositional and predicate logic, including semantics and deductive systems and with a discussion of completeness, incompleteness and the decision problem.

**MATH 446 Axiomatic Set Theory (3)** Prerequisite: MATH403 or MATH410. Development of a system of axiomatic set theory, choice principles, induction principles, ordinal arithmetic including discussion of cancellation laws, divisibility, canonical expansions, cardinal arithmetic including connections with the axiom of choice, Hartog's theorem, König's theorem, properties of regular, singular and inaccessible cardinals.

**MATH 450 Logic for Computer Science (3)** Prerequisites: CMSC251 and MATH141, with grade of C or better and permission of department. Also offered as CMSC450. Credit will be granted for only one of the following: MATH445 or MATH450/CMSC450. Elementary development of propositional and first-order logic accessible to the advanced undergraduate computer science student, including the resolution method in propositional logic and Herbrand's Unsatisfiability Theorem in first-order logic. Included are the concepts of truth, interpretation, validity, provability, soundness, completeness, incompleteness, decidability and semi-decidability.

**MATH 452 Introduction to Dynamics and Chaos (3)** Prerequisite: MATH240 and MATH246. Also offered as AMSC452. Credit will be granted for only one of the following: AMSC452, MAPL452 or MATH452. An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor

sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.

**MATH 456 Cryptology (3)** Prerequisites: Any two 400-level MATH courses; OR CMSC330 and CMSC351 and permission of department. Also offered as CMSC456. Credit will be granted for only one of the following: MATH456 or CMSC456. Importance in protecting data in communications between computers. The subject lies on the border between mathematics and computer science. Mathematical topics include number theory and probability. Computer science topics include complexity theory.

**MATH 461 Linear Algebra for Scientists and Engineers (3)** Prerequisites: MATH141 and one MATH/STAT course for which MATH141 is a prerequisite. This course cannot be used toward the upper level math requirements for MATH/STAT majors. Credit will be granted for only one of the following: MATH240, MATH341, MATH400 or MATH461. Basic concepts of linear algebra. This course is similar to MATH 240, but with more extensive coverage of the topics needed in applied linear algebra: change of basis, complex eigenvalues, diagonalization, the Jordan canonical form.

**MATH 462 Partial Differential Equations for Scientists and Engineers (3)** Prerequisites: MATH241 and MATH246. Linear spaces and operators, orthogonality, Sturm-Liouville problems and eigenfunction expansions for ordinary differential equations. Introduction to partial differential equations, including the heat equation, wave equation and Laplace's equation. Boundary value problems, initial value problems and initial-boundary value problems.

**MATH 463 Complex Variables for Scientists and Engineers (3)** Prerequisite: MATH241 or equivalent. The algebra of complex numbers, analytic functions, mapping properties of the elementary functions. Cauchy integral formula. Theory of residues and application to evaluation of integrals. Conformal mapping.

**MATH 464 Transform Methods for Scientists and Engineers (3)** Prerequisite: MATH246. Fourier series, Fourier and Laplace transforms. Evaluation of the complex inversion integral by the theory of residues. Applications to ordinary and partial differential equations of mathematical physics: solutions using transforms and separation of variables. Additional topics such as Bessel functions and calculus of variations.

**MATH 475 Combinatorics and Graph Theory (3)** Prerequisites: MATH240 and MATH241; and permission of department. Also offered as CMSC475. Credit will be granted for only one of the following: MATH475 or CMSC475. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.

**MATH 478 Selected Topics For Teachers of Mathematics (1-3)** Prerequisite: one year of college mathematics or permission of department. (This course cannot be used toward the upper level math requirements for MATH/STAT majors).

**MATH 489 Research Interactions in Mathematics (1-3)** Prerequisite: permission of department. Repeatable to 10 credits if content differs. Students participate in a vertically integrated (undergraduate, graduate and/or postdoctoral, faculty) mathematics research group. Format varies. Students and supervising faculty will agree to a contract which must be approved by the department. Up to three credits of MATH 489 may be applied to the mathematics degree requirements. See the department's MATH 489 online syllabus for further information.

**MATH 498 Selected Topics in Mathematics (1-9)** Honors students register for reading courses under this number. Repeatable to 9 credits if content differs. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the departmental committee on undergraduate studies.

**MATH 499 Honors Seminar (2)** Prerequisite: permission of department. Not open to graduate students. Formerly MATH 398. Faculty supervised reports by students on mathematical literature. Both oral and written presentation on special topics of current interest.

### MEES – Marine-Estuarine-Environmental Sciences

**MEES 498 Topics in Marine-Estuarine-Environmental Sciences (1-4)** Lecture and/or laboratory series organized to study a selected area of marine-estuarine-environmental sciences not otherwise considered in formal courses.



## 228 Approved Courses

### MUED – Music Education

**MUED 155 Fundamentals for the Classroom Teacher (3)** Open to students majoring in pre-early childhood education, pre-elementary education, elementary education or childhood education. Credit will be granted for only one of the following: MUED155 or MUSC155. Formerly MUSC 155. The fundamentals of music theory and practice, related to the needs of the classroom and the kindergarten teacher.

**MUED 186 Pre-professional Experiences I (2)** For MUED majors only. Not open to students who have completed MUED197. Credit will be granted for only one of the following: MUED197 or MUED186. Formerly MUED 197. An orientation into the role of the music teacher in the school and community. On-site school visits at elementary, middle and high school levels form the basis for discussion and exploration of all facets of the music education profession. Fulfills the College of Arts and Humanities requirement for UNIV 101.

**MUED 187 Pre-Professional Experiences II (1)** Prerequisite: MUED186. For MUED majors only. Regular on-site school visitation at elementary, middle and high school levels arranged to expand student understandings and reflections of music instruction in classroom settings.

**MUED 213 String Technique and Pedagogy I (2)** Open only to majors in music education. For MUED majors only. Not open to students who have completed MUED113. Credit will be granted for only one of the following: MUED113 or MUED213. Formerly MUED 113. A study of violin, viola, cello and bass technique and pedagogy; beginning level. Emphasizes group process playing and teaching.

**MUED 214 String Technique and Pedagogy II (2)** Prerequisite: MUED213; Open only to majors in Music Education (instrumental option). For MUED majors only. Not open to students who have completed MUED114. Credit will be granted for only one of the following: MUED114 or MUED214. Formerly MUED 114. A study in violin, viola, cello and bass technique and pedagogy; intermediate to advanced level. Emphasizes group process playing and teaching, chamber music and individual technique development.

**MUED 215 Woodwind Technique and Pedagogy (2)** Prerequisite: permission of department. Formerly: MUED116 and MUED117. Not open to students who have completed MUED116 and MUED117. Credit will be granted for only one of the following: MUED116, MUED117 or MUED215. Playing experience on instruments of the woodwind family. Historical and acoustical background. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

**MUED 216 Percussion Technique and Pedagogy (2)** For MUED majors only. Not open to students who have completed MUED116, MUED120 and MUED121. Credit will be granted for only one of the following: MUED116, MUED120 and MUED121; or MUED216. Playing experience on percussion instruments. Historical and acoustical background. Scoring for percussion. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

**MUED 217 Brass Instrument Technique and Pedagogy (2)** Formerly: MUED120 and MUED121. For MUED majors only. Not open to students who have completed MUED120 and MUED121. Credit will be granted for only one of the following: MUED120 and MUED121; or MUED217. Playing experience on instruments of the brass family. Historical and acoustical background. Principles of improvisation. Basic concepts of teaching. Methods and materials. Techniques of individual and class instruction.

**MUED 222 Classroom Instruments Technique and Pedagogy (2)** Prerequisite: MUED186 and MUED187. For MUED majors only. An introduction to the fundamentals of classroom instruments technique and pedagogy for the choral and general teacher.

**MUED 311 Foundations of Elementary Instrumental Instruction (2)** For MUED majors only. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to teach fundamental musical skills at the elementary level.

**MUED 320 Foundations of Secondary Instrumental Instruction (2)** Prerequisite: MUED311. For MUED majors only. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to extend secondary-level musical skill through planned instruction and development of teaching materials.

**MUED 333 Classroom Vocal Pedagogy (2)** Prerequisites: MUED186 and MUED187. For MUED majors only. An introduction to the fundamentals of group vocal pedagogy for the choral and general classroom teacher, including the teaching of posture, breathing, resonance, registration, articulation and foreign language diction as appropriate to needs of the child or adolescent singer in K-12 classroom settings.

**MUED 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor and student's internship sponsor. Junior standing.

**MUED 410 Instrumental Arranging (2)** Prerequisites: MUSC250 and permission of department. Arranging for school bands and orchestras from the elementary through high school levels.

**MUED 411 Advanced Methods in Elementary Instrumental Music Instruction (2)** Prerequisites: MUED311 and MUED320. Corequisite: MUED489. For MUED majors only. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to develop and/or maintain an exemplary curricular-oriented, research-based, comprehensive elementary instrumental music program.

**MUED 420 Advanced Methods in Secondary Instrumental Music Instruction (2)** Prerequisites: MUED311 and MUED320. Corequisite: MUED489. For MUED majors only. Prepare instrumental-emphasis music education majors to synthesize the knowledge and skills that will enable them to develop and/or maintain an exemplary, curricular-oriented, research-based, comprehensive secondary instrumental program.

**MUED 471 Elementary General Music Methods (2)** Prerequisites: MUED222 and MUED333. Corequisite: MUED489. For MUED majors only. A study of music curriculum, materials and teaching techniques for the development of sequential experiences which contribute to children's musical growth in the elementary schools.

**MUED 472 Choral Methods (2)** Prerequisite: MUED471. Corequisite: MUED489. For MUED majors only. Preparation for teaching choral classes through the integration of conducting technique, vocal pedagogy, knowledge of repertoire, and the application of appropriate instructional strategies in the context of peer teaching and field experience assignments.

**MUED 473 Secondary General Music Methods (2)** For MUED majors only. Not open to students who have completed MUED478 (Special Topics in Music Education: General Music in Middle/Junior or High Schools). Credit will be granted for only one of the following: MUED473 or MUED478. Formerly MUED 478. Introduction to current trends, materials and approaches in secondary general music instruction.

**MUED 484 Student Teaching in Elementary School: Music (4-6)** Prerequisites: Admission to teacher education program and permission of department. Corequisite: MUED494. For MUED majors only. Not open to students who have completed EDCI484. Credit will be granted for only one of the following: EDCI484 or MUED484. Formerly EDCI 484. Fulfills elementary teaching requirements in K-12 music teacher education program. Limited to music education majors who have previously applied.

**MUED 489 Field Experiences (1)** Prerequisite: permission of department. Restricted to music education majors only. Repeatable to 6 credits. Series of field experiences in K-12 settings.

**MUED 494 Student Teaching in Secondary School: Music (4-6)** Prerequisites: admission to teacher education program and permission of department. Corequisite: MUED484. For MUED majors only. Not open to students who have completed EDCI494. Credit will be granted for only one of the following: EDCI494 or MUED494. Formerly EDCI 494. Fulfill secondary teaching requirements in K-12 music teacher education program. Limited to music education majors who have previously applied.

**MUED 499 Workshops, Clinics, Institutes (1-3)** Repeatable to 6 credits if content differs. Innovative and experimental dimensions of music education offered to meet the needs of music teachers and music supervisors allowing students to individualize their programs.

### MUET – Ethnomusicology

**MUET 200 World Popular Musics and Identity (3)** Two hours of lecture and one hour of discussion/recitation per week. Perspectives of world popular music as contested terrain, in terms of gender, nationality and aesthetics. Students will read case histories of specific movements, social commentaries on genres such as reggae, celtic-pop and rap, and investigate issues such as accessibility and technological constraints. The unifying factors are cross-cultural perceptions and displays of national identity, cultural retentions, stability and change.

**MUET 210 The Impact of Music on Life (3)** Two hours of lecture and one hour of discussion/recitation per week. Music as a part of culture. Materials drawn from traditions throughout the globe to illustrate issues of historical and contemporary significance, including the impact of race, class and gender on the study of music.

**MUET 220 Selected Musical Cultures of the World (3)** A survey of selected musical cultures of the world, such as India, Japan, China, Indonesia, West Africa, Eastern Europe and the Near East.

**MUET 420 Introduction to Ethnomusicology (3)** Prerequisite: MUET210, MUSC130, or permission of instructor. Junior standing. Study of principal concepts and methods in ethnomusicology, covering history of field, linguistics and anthropology, music in various settings, musical cognition and ethnography of performance.

**MUET 430 The American Musical Experience: North America (3)** Prerequisite: MUET210 or MUSC130. Junior standing. Many musical styles found in North America portray the ideas and beliefs that characterize our diverse society. Specific problems and issues in American society examined through the American musical experience.

**MUET 432 Music in World Culture I (3)** Prerequisite: MUSC130 or permission of department. Junior standing. Musics of the Pacific and Asia analyzed in terms of musical, social and aesthetic interrelationships.

**MUET 433 Music in World Cultures II (3)** Prerequisite: MUSC130 or permission of department. Junior standing. Musics of Europe, Africa, and the Americas analyzed in terms of musical, social and aesthetic interrelationships.

**MUET 438 Area Studies in Ethnomusicology (3)** Prerequisite: MUET432 or MUET433 or equivalent. Repeatable to 9 credits if content differs. Advanced study of musics in selected parts of the world.

### MUSC – School of Music

**MUSC 099 Performance Attendance (1)** Performance attendance laboratory for undergraduate music majors.

**MUSC 100 Beginning Class Voice (2)** Four hours of laboratory per week. A laboratory course involving a variety of voices and vocal problems. Principles of correct breathing as applied to singing; fundamentals of tone production and diction. Repertoire of folk songs and songs of the Classical and Romantic periods. Development of students' voices.

**MUSC 102 Class Piano (2)** Four hours of laboratory per week. Functional piano training for beginners. Development of techniques for school and community playing. Basic piano techniques; chord, arpeggio and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition and playing by ear.

**MUSC 103 Beginning Class Piano II (2)** Four hours of laboratory per week. Prerequisite: MUSC102 or permission of department. Functional piano training for beginners. Development of techniques useful for school and community playing. Basic piano techniques; chord, arpeggio, and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition, and playing by ear. MUSC 103 is a continuation of MUSC 102; elementary repertoire is begun.

**MUSC 106 Beginning Classical Guitar (2)** Two hours of lecture and five hours of laboratory per week. Introduction to classical guitar notation, technique, literature and performance. No previous musical experience required.

**MUSC 123 Movement for Singers (1)** Prerequisite: permission of department. Systematic exercises, improvisations and dances in conjunction with artistic vocal expression. Performance and critique of stage department, gestures and recital techniques.

**MUSC 126 Vocal Diction: English and Latin (1)** Two hours of laboratory per week. Prerequisite: permission of department. Augmentation of private voice study. Phonetics and diction for singers of English and Latin vocal literature.

**MUSC 127 Vocal Diction: Italian and Spanish (1)** Prerequisite: permission of department. For MUSC majors only. Augmentation of private voice study. Phonetics and diction for singers of Italian and Spanish vocal literature.

**MUSC 128 Sight Reading For Pianists (2)** Repeatable to 4 credits. A course to give the piano major an opportunity to develop proficiency in sight reading at the keyboard.

**MUSC 129 Ensemble (1)** Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC 129, the student will elect MUSC 229 for two additional semesters and MUSC 329 thereafter.

**MUSC 130 Survey of Music Literature (3)** Three hours of lecture and one hour of laboratory per week. Open to all students except music and music education majors. A study of the principles upon which music is based, and an introduction to the musical repertory performed in America today.

**MUSC 140 Music Fundamentals I (3)** Limited to non-music majors. Introductory theory course. Notation, scales, intervals, triads, rhythm, form and basic aural skills.

## Approved Courses 229

**MUSC 150 Theory of Music I (3)** Prerequisite: departmental audition and entrance examination. For MUSC majors only. A study of basic concepts and skills in tonal melody and harmony through analysis and composition.

**MUSC 151 Theory of Music II (3)** Prerequisite: a grade of C or better in MUSC150. A continuation of MUSC 150, including study of more advanced harmonic techniques of the eighteenth century, such as modulation and chromatic harmonies. Emphasis on sight singing, ear training, analysis and compositional skills.

**MUSC 155 Fundamentals for the Classroom Teacher (3)** Open to students majoring in pre-early childhood education, pre-elementary education, elementary education, or childhood education; other students take MUSC150. Credit will be granted for only one of the following: MUSC150 or MUSC155. The fundamentals of music theory and practice, related to the needs of the classroom and kindergarten teacher, and organized in accordance with the six-area concept of musical learning.

**MUSC 200 Intermediate Class Voice I (2)** Four hours of laboratory per week. Prerequisite: MUSC100 or equivalent vocal training. Continuation of MUSC 100, with more advanced repertory for solo voice and small ensembles. A special section for music education majors will include the study of methods and materials for teaching class voice.

**MUSC 202 Intermediate Class Piano I (2)** Four hours of laboratory per week. Prerequisite: MUSC103 or equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC 103. Transposition, modulation and sight reading; methods of teaching functional piano.

**MUSC 203 Intermediate Class Piano II (2)** Four hours of laboratory per week. Prerequisite: MUSC202 or equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC 202. Transposition, modulation and sight reading; methods of teaching functional piano. Development of style in playing accompaniments and in playing for community singing. More advanced repertory.

**MUSC 205 History of Rock Music, 1950 - Present (3)** Two hours of lecture and one hour of discussion/recitation per week. A historical survey of rock music from about 1950 to the present, with emphasis on pop music as music and pop music as social history.

**MUSC 226 Vocal Diction: French (1)** Prerequisite: permission of department. For MUSC majors only. Augmentation of private voice study. Phonetics and diction for singers of French vocal literature.

**MUSC 227 Vocal Diction: German (1)** Prerequisite: permission of department. For MUSC majors only. Augmentation of private voice study. Phonetics and diction for singers of German vocal literature.

**MUSC 228 Introduction to Accompanying for Pianists (2)** Prerequisite: permission of department. For MUSC majors only. Repeatable to 10 credits. A course to introduce the piano major to accompanying at an intermediate level of difficulty. Class instruction will center on rehearsal and coaching geared toward performance, and will be supplemented by experience working as an accompanist in voice classes or applied studios.

**MUSC 229 Ensemble (1)** Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC 129, the student will elect MUSC 229 for two additional semesters and MUSC 329 thereafter.

**MUSC 230 History of Music I (3)** Prerequisite: MUSC250 or equivalent; and permission of department. A historical study of western music from Corelli through Beethoven.

**MUSC 248 Selected Topics in Music (1-3)** Prerequisite: permission of School of Music. A maximum of three credits may be applied to music major requirements. Repeatable to 6 credits if content differs. Designed to allow a student of theory or music history to pursue a specialized topic or project under the supervision of a faculty member.

**MUSC 250 Advanced Theory of Music I (4)** Prerequisite: MUSC151 with a minimum grade of C. A continuation of MUSC 151, with further study of chromatic and modulatory techniques of the nineteenth century. Emphasis on sight singing, ear training, analysis and compositional skills.

**MUSC 251 Advanced Theory of Music II (4)** Prerequisite: a grade of C or better in MUSC250. A continuation of MUSC 250, concentrating on late nineteenth-century chromatic harmony and an introduction to twentieth-century melody and harmony. Emphasis on sight singing, ear training, analysis and compositional skills.

**MUSC 328 Introduction to Chamber Music for Pianists (2)** Two hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 10 credits. A course to introduce the piano major to chamber music at a moderately difficult level. Class instruction will center on actual rehearsal and coaching geared toward performance, and will be supplemented by further experience in applied instrumental studios.

**MUSC 329 Ensemble (1)** Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC 129, the student will elect MUSC 229 for two additional semesters and MUSC 329 thereafter.

**MUSC 330 History of Music II (3)** Prerequisite: MUSC250 or equivalent; and permission of department. A historical study of western music from the Romantic era to the present.

**MUSC 331 History of Music III (3)** Prerequisite: MUSC230, MUSC330, and permission of department. A historical study of western music from Antiquity through the Baroque, ending with a review of all periods of music history.

**MUSC 339 Honors in Music (3)** Prerequisite: permission of department. Corequisite: MUSC349. Repeatable to 6 credits. The production of one or more recitals or lecture-recitals; one or more compositions; or one or more honors theses in addition to regular degree requirements. Two semesters required.

**MUSC 345 Jazz Theory and Improvisation I (3)** Prerequisite: MUSC251 or permission of department. Jazz theory, notational conventions, improvisation techniques, reading and analysis of music, and performance in small combo format.

**MUSC 346 Jazz Theory and Improvisation II (3)** Prerequisite: MUSC345 or permission of department. Continuation of MUSC 345 including scoring and transcription.

**MUSC 349 Honors Seminar in Music (1)** Corequisite: MUSC339. Repeatable to 2 credits. Group discussion of projects undertaken in MUSC 339. Two semesters required.

**MUSC 379 Opera Workshop (1)** Four hours of laboratory per week. Repeatable to 4 credits. Open to music and non-music majors (by audition). Operatic production and performance, performance techniques and coaching, stage direction, set design, costume design and make-up. Repertory will include smaller operatic works, excerpts or scenes.

**MUSC 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**MUSC 388 Music Internship (3)** Prerequisite: permission of department. Corequisite: MUSC389. Repeatable to 6 credits. Pre-professional field work in music.

**MUSC 389 Music Internship Analysis (1)** One hour of lecture per week. Corequisite: MUSC388. Repeatable to 2 credits. Documentation and evaluation of field work experience.

**MUSC 400 Music Pedagogy (3)** Pre- or corequisite: MUSP419 or a more advanced course in applied music; and permission of department. Conference course. A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.

**MUSC 428 Repertoire Coaching of Vocal or Chamber Music (2)** Pre- or corequisite: MUSC328. A course for piano students who wish to go further than the work offered in MUSC 128, MUSC 228 and MUSC 328 by becoming specialists in the areas of vocal coaching or chamber music coaching. Elements of pedagogy, conducting and responsible artistic decision-making for the entire musical production.

**MUSC 435 Music of North America (3)** Prerequisite: permission of department. A survey of North American music from Colonial times to present.

**MUSC 436 Jazz: Then and Now (3)** Prerequisite: permission of department. Major styles and influential artists of the past 75 years of jazz.

**MUSC 439 Collegium Musicum (1)** Prerequisite: permission of department. Repeatable to 5 credits. Open to undergraduates and graduates, music majors and non-majors. Procurement, edition and performance of music not belonging to a standard repertory: early music, compositions for unusual performing media, works which demand reconstruction of their original circumstances of performance. Outcome of a semester's work may be one or more performances for the public.

**MUSC 443 Solo Vocal Literature (3)** Prerequisite: MUSC330, MUSC331 or equivalent. The study of solo vocal literature from the Baroque Cantata to the Art Song of the present. The Lied, Melodie, vocal chamber music and the orchestral song are examined.

**MUSC 444 Wind and Percussion Literature (1)** Prerequisite: permission of department. Corequisite: MUSP419 or MUSP420. Recital program notes and written projects in wind or percussion literature.

**MUSC 446 String Literature (1)** Prerequisite: MUSP316 and permission of department. Recital program notes and written projects in string literature.

**MUSC 448 Selected Topics in Music (1-3)** Prerequisite: permission of department. A maximum of three credits may be applied to music major requirements. Junior standing. Repeatable to 6 credits if content differs.

**MUSC 450 Musical Form (3)** Prerequisite: MUSC251. A study of the principles of organization in music with emphasis on eighteenth and nineteenth century European music. Reading and analysis of scores exemplifying the musical forms.

**MUSC 451 Analysis of Music (3)** Prerequisite: MUSC450 and permission of department. An advanced course in the analysis of tonal music. Discussion of individual works, with emphasis on their unique characteristics and on the relation of analysis to performance.

**MUSC 452 Keyboard Harmony (2)** Prerequisite: MUSC251. Keyboard performance of musical score for vocal and instrumental ensembles and keyboard realization of basso continuo parts.

**MUSC 455 Theory of Jazz (3)** Prerequisite: MUSC250 or permission of department. For MUSC majors only. An aural-theoretical examination of melodic and harmonic function in jazz with emphasis on bebop. "Layered" harmonic analysis combined with melodic analysis of solo transcriptions applied to the creation of small group arrangements of "standard" tunes.

**MUSC 460 Tonal Counterpoint I (3)** Prerequisite: MUSC251 or permission of department. A course in Eighteenth-Century contrapuntal techniques, analysis and original composition of two-voice dances, preludes, and inventions. Includes an introduction to the study of fugue and canon.

**MUSC 462 Music Notation on Computers (3)** Prerequisite: MUSC150 or permission of department. An in-depth, hands-on study of music notation using computers. All issues of standard notation practice are examined, including score preparation, text in vocal music, keyboard idioms and the extraction and printing of parts from larger ensemble scores.

**MUSC 463 Applications in Music Technology (3)** A hands-on study of computer hardware and software that makes use of the MIDI (Musical Instrument Digital Interface) specification. This protocol allows computers, synthesizers and various other devices to send and receive information about musical performance, notation and sound. The course focuses on two of the most frequently used applications on MIDI—sequencing and music notation. Also included is an introduction to digital audio. No previous experience with computers is required. Ability to read music on a grand staff (treble and bass clef) is recommended.

**MUSC 467 Piano Pedagogy I (3)** Prerequisite: permission of department. A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.

**MUSC 468 Piano Pedagogy II (3)** Prerequisite: MUSC467 and permission of department. Repeatable to 6 credits. Application of the studies begun in MUSC 467 to the actual lesson situation. Evaluation of results.

**MUSC 470 Harmonic and Contrapuntal Practices of the Twentieth Century (3)** Prerequisite: MUSC251 or equivalent; and permission of department. A theoretical and analytical study of twentieth century materials.

**MUSC 471 Contemporary Compositional Techniques (3)** Prerequisite: MUSC470 and permission of department. Continuation of MUSC 470, with emphasis on the analysis of individual works written since 1945.

**MUSC 480 Music in Antiquity and the Middle Ages (3)** Survey of western music from Hellenic times to 1450.

**MUSC 481 Music in the Renaissance (3)** Survey of western music from 1450 to 1600.

**MUSC 482 Music in the Baroque Era (3)** Survey of western music from 1600 to 1750.

**MUSC 483 Music in the Classic Era (3)** Survey of western music from 1750 to 1820.

**MUSC 484 Music in the Romantic Era (3)** Survey of western music from 1820 to 1900.

**MUSC 485 Music in the 20th Century (3)** Prerequisite: permission of department. Survey of western music from 1900 to the present.

**MUSC 486 Orchestration I (3)** Prerequisite: MUSC251 and permission of department. A study of the ranges, musical functions and technical characteristics of the instruments and their color possibilities in various combinations. Practical experience in orchestrating for small and large ensembles.

**MUSC 490 Conducting (2)** Prerequisite: MUSC251. Vocal and instrumental baton techniques.

**MUSC 491 Conducting II (2)** Prerequisite: MUSC490 or equivalent. Baton techniques applied to score reading, rehearsal techniques, tone production, style and interpretation.

## 230 Approved Courses

**MUSC 492 Keyboard Music I (3)** Prerequisite: permission of department. The history and literature of harpsichord and solo piano music from its beginning to the romantic period. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.

**MUSC 493 Keyboard Music II (3)** Prerequisite: MUSC492 and permission of department. The history and literature of harpsichord and solo piano music from the Romantic period to the present. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.

**MUSC 494 Survey of Theory (3)** Prerequisite: MUSC251 and permission of department. A study of the major contributions of music theorists from Greek antiquity through the twentieth century.

**MUSC 499 Independent Studies (2-3)** Prerequisite: permission of department. May be repeated once for credit. Independent research on a topic chosen in consultation with the instructor, which may culminate in a paper or appropriate project.

### MUSP – Music Performance

Undergraduate Music Performance Courses are available in three series:

Minor Series: 42-credits each course. Prerequisite: permission of department chairperson. Limited to music majors studying a secondary instrument and to non-music majors. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 102. Transfer students are evaluated for higher placement after one semester of study. One-half hour private lesson per week plus assigned independent practice. MUSP 102, 103 Freshman Courses. MUSP 202, 203 Sophomore Courses. MUSP 302, 303 Junior Courses. MUSP 402, 403 Senior Courses.

Principal Series: 42 or 4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in music programs other than performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 109. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 109, 208, and 409 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements. MUSP 109, 110, Freshman Courses. MUSP 207, 208 Sophomore Courses. 13MUSP 305, 306 Junior Courses. MUSP 409, 410 Senior Courses. Recital required in MUSP 410.

Major Series: 42 or 4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 119. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 119, 218, and 419 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements. MUSP 119, 120 Freshman Courses. MUSP 217, 218 Sophomore Courses. MUSP 315, 316 Junior Courses. MUSP 419, 420 Senior Courses. Recital required in MUSP 420. Instrument designation: each student taking a music performance course must indicate the instrument chosen by adding a suffix to the proper course number, such as: MUSP 102A music performance—piano.

A—piano; B—voice; C—violin; D—viola; E—cello; F—bass; G—flute; H—oboe; I—clarinet; J—bassoon; K—saxophone; L—horn; M—trumpet; N—trombone; O—tuba; P—euphonium; Q—percussion; T—composition; U—world instruments; V—harp; W—electronic composition; X—hist inst - keyboard; Y—hist inst - strings; Z—hist inst - winds.

**MUSP 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

### NFSC – Nutrition and Food Science

**NFSC 100 Elements of Nutrition (3)** Fundamentals of human nutrition. Nutrient requirements related to changing individual and family needs.

**NFSC 112 Food: Science and Technology (3)** Two hours of lecture and one hour of discussion/recitation per week. Introduction to the realm of food science, food technology and food processing. An overview of the largest industry in the U.S. with emphasis on the science of food and the technology of food preservation from harvest through processing and packaging to distribution and consumer utilization.

**NFSC 250 Science of Food (4)** Three hours of lecture and three hours of laboratory per week. Prerequisites: NFSC112; and CHEM103; and CHEM113; permission of department. For NFSC majors only. Composition and structure of food with emphasis on chemical, physical, and biological properties, as well as quality characteristics of food products. Food preparation lab with emphasis on the experimental study of food.

**NFSC 315 Nutrition During the Life Cycle (3)** Prerequisite: NFSC100 or NFSC200. Formerly NUTR 315. A study of how development throughout life, including prenatal development, pregnancy, lactation, adolescence and aging, alter nutrient requirements. Students will apply this knowledge to the dietary needs and food choices of these different groups.

**NFSC 350 Foodservice Operations (5)** Three hours of lecture and five hours of laboratory per week. Prerequisite: NFSC250. Pre- or corequisite: BSCI223. Corequisite: BMGT364. For Dietetics majors only. Introduction to management. Responsibilities in quantity food production and purchasing in a foodservice operation. Laboratory experience in planning, preparation, and service of meals which meet the nutritional needs of the consumer.

**NFSC 380 Methods of Nutritional Assessment (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: NFSC315. Corequisite: BCHM461. For NFSC majors only. Methods of assessing human nutritional status of populations and individuals. These methods include dietary, anthropometric, clinical evaluations and biochemical measurements.

**NFSC 386 Experiential Learning (3-6)** Prerequisite: permission of department. Formerly FDSC386 and NUTR386. Junior standing.

**NFSC 388 Honors Thesis Research (3-6)** Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

**NFSC 398 Seminar (1) Formerly FDSC 398.** Presentation and discussion of current literature and research in food science.

**NFSC 399 Special Problems in Food Science (1-3)** Formerly FDSC 399. Designed for advanced undergraduates. Specific problems in food science will be assigned.

**NFSC 403 Medicinal and Poisonous Plants (2)** Prerequisites: BSCI105 and CHEM104. A study of plants important to humans that have medicinal or poisonous properties. Emphasis on plant source, plant description, the active agent and its beneficial or detrimental physiological action and effects.

**NFSC 412 Food Processing Technology (4)** Three hours of lecture and three hours of laboratory per week. Prerequisites: CHEM243; and NFSC431; and NFSC434; and ENBE414. Corequisites: NFSC421 and NFSC423. Recommended: MATH220. Formerly FDSC 412. Provides in-depth study of the major industrial modes of food preservation. It integrates aspects of the biology, microbiology, biochemistry and engineering disciplines as they relate to food processing technology and food science.

**NFSC 421 Food Chemistry (3)** Prerequisite: BCHM461. Basic chemical and physical concepts are applied to the composition and properties of foods. Emphasis on the relationship of processing technology to the keeping quality, nutritional value, and acceptability of foods.

**NFSC 422 Food Product Research and Development (3)** One hour of lecture and four hours of laboratory per week. Prerequisite: permission of department. Senior standing. For FDSC majors only. Formerly FDSC 422. A capstone course for FDSC majors. A study of the research and development of new food products. Application of food technology, engineering, safety and packaging are integrated by teams of students to develop a new food product from concept to pilot plant scale-up. Students will travel to nearby food processing plants on two to four Saturdays during the semester.

**NFSC 423 Food Chemistry Laboratory (3)** Four hours of laboratory per week. Pre- or corequisite: NFSC421. Analysis of the major and minor constituents of food using chemical, physical and instrumental methods in concordance with current food industry and regulatory practices. Laboratory exercises coincide with lecture subjects in NFSC 421.

**NFSC 425 International Nutrition (3)** Prerequisite: course in basic nutrition. Nutritional status of world population; consequences of malnutrition on health and mental development; and local, national, and international programs for nutritional improvement.

**NFSC 430 Food Microbiology (2)** Prerequisite: BSCI233 or equivalent. Also offered as ANSC430. Credit will be granted for only one of the following: NFSC430 or ANSC430. Formerly FDSC 430. A study of microorganisms of major importance to the food industry with emphasis on food-borne outbreaks, public health significance, bioprocessing of foods, disease control, and the microbial spoilage of foods.

**NFSC 431 Food Quality Control (4)** Three hours of lecture and two hours of laboratory per week. Definition and organization of the quality control function in the food industry; preparation of specifications; statistical methods for acceptance sampling; in-plant and processed product inspection. Instrumental and sensory methods for evaluating sensory quality, identity and wholesomeness and their integration into grades and standards of quality. Statistical Process Control (SPC).

**NFSC 434 Food Microbiology Laboratory (3)** One hour of lecture and five hours of laboratory per week. Pre- or corequisite: NFSC430. Also offered as ANSC434. Credit will be granted for only one of the following: NFSC434 or ANSC434. Formerly FDSC 434. A study of techniques and procedures used in the microbiological examination of foods.

**NFSC 440 Advanced Human Nutrition (4)** Four hours of lecture per week. Prerequisites: NFSC100 or NFSC200; and BCHM462; and BSCI440. A critical study of physiologic, molecular and metabolic influences on utilization of carbohydrates, lipids, proteins, vitamins, macro- and micro-minerals, and nonnutritive components of food. Interactions of these nutrients and food components will be examined relative to maintaining health.

**NFSC 450 Food and Nutrient Analysis (3)** One hour of lecture and four hours of laboratory per week. Prerequisites: NFSC100 or NFSC200; and BCHM461. Formerly NUTR 450. Methods and practices of the analysis of foods and nutrients. An overview of the principles and basic mechanisms used in many of the analytical procedures commonly used in food and nutrition research. Emphasis will be placed on hands-on development of skills necessary to complete each analytical procedure; and on the accurate and concise description of the methodology and results from their application and on the regulations governing food analysis for nutritional labeling.

**NFSC 460 Medical Nutrition Therapy (4)** Three hours of lecture and two hours of laboratory per week. Prerequisites: NFSC380 and NFSC440. Formerly NUTR 460. Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders.

**NFSC 468 Practicum in Nutrition (1-6)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly NUTR 468. In-service training and practical experience in the application of the principles of normal and/or therapeutic nutrition in an approved community agency, clinical facility or nutrition research laboratory.

**NFSC 470 Community Nutrition (3)** Two hours of lecture and three hours of discussion/recitation per week. Prerequisites: NFSC100 or NFSC200; and NFSC315. Formerly NUTR 470. Perspectives underlying the practice of nutrition services in community settings. Assessment of needs, program planning and evaluation. Programs and strategies to meet nutrition needs outside the acute care setting, such as nutrition education and food assistance. National nutrition policy and federal initiatives in nutrition will be examined. Students will be required to travel to local community nutrition sites during the semester.

**NFSC 490 Special Problems in Nutrition (2-3)** Prerequisites: NFSC440 and permission of department. Individually selected problems in the area of human nutrition.

**NFSC 491 Issues and Problems in Dietetics (3)** Five hours of lecture per week. Prerequisite: NFSC350 and permission of department. Corequisite: NFSC460. Senior standing. For DIET majors only. A capstone course for dietetics majors. Students will integrate knowledge and theory of nutrition, food, management, psychology, and social behaviors necessary to support quality dietetic practice. Working in teams, students will participate in case studies, simulated situations and community projects. Individuals and groups will present cases as well as papers on published research.

**NFSC 498 Selected Topics (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected current aspects of food.

### NRMT – Natural Resources Management

**NRMT 314 Biology and Management of Finfish (4)** Two hours of lecture and six hours of laboratory per week. Prerequisite: one year of course work in Biological sciences. Formerly AGRI 314. Fundamentals of individual and population dynamics; theory and practice of sampling fish populations; management schemes.

**NRMT 388 Honors Thesis Research (3-6)** Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

**NRMT 389 Internship (3)** Prerequisite: permission of department. Repeatable to 6 credits. Formerly AGRI 389. Students are placed in work experiences related to their stated career goals for a minimum of eight hours a week for a semester. Each student must do an in-depth study in some portion of the work experience and produce a special project and report related to this study. A student work log is also required. An evaluation from the external supervisor of the project will be required.

**NRMT 444 Restoration Ecology (3)** Prerequisite: MATH220. Sophomore standing. Formerly NRMT 489F. Discussion of the philosophies, principles, and practices of ecosystem restoration. Presentation of restoration case histories include wetlands, lakes, streams, coastal systems, mined lands, and new ecosystems.

**NRMT 450 Wetland Ecology (3)** One hour of lecture and four hours of laboratory per week. Prerequisite: BIOM301 or permission of department. Also offered as MEES650. Credit will be granted for only one of the following: NRMT450 or MEES650. Plant and animal communities, biogeochemistry, and ecosystem properties of wetland systems. Laboratory emphasizes collection and analysis of field data on wetland vegetation, soil, and hydrology.

**NRMT 451 Water Quality: Field and Lab Analysis Methods (3)** Two hours of lecture and three hours of laboratory per week. Prerequisites: CHEM131/132 and CHEM104 or CHEM231/232. Also offered as ENBE451. Credit will be granted for only one of the following: NRMT451 or ENBE451. Hands-on experience with techniques for assessing physical, chemical, and biological characteristics of surface waters, including streams, lakes, and wetlands. Emphasis is placed on understanding effects of water quality on ecosystem structure and function.

**NRMT 460 Principles of Wildlife Management (3)** Three hours of lecture per week. Three Saturday field trips are scheduled. Prerequisite: two semesters of biology laboratory or permission of department. Ecological principles and requirements of wildlife as basis for management, and introduction to the scientific literature. Conflicts in wildlife management, government administration of wildlife resources, legislation, and history of the wildlife management profession.

**NRMT 461 Urban Wildlife Management (3)** Two lectures per week. Two Saturday field trips are scheduled. Ecology and management of wildlife in urban areas. For students in biological sciences, geography, landscape design, natural resources management, recreation and urban studies. Planning, design, and wildlife conservation in landscape ecology. Public attitudes, preferences, and values, reviews of private conservation organizations.

**NRMT 462 Field Techniques in Wildlife Management (2)** Four hours of laboratory per week. Recommended: NRMT460 and NRMT461. Junior standing. Credit will be granted for only one of the following: NRMT489B or NRMT462. Formerly NRMT 489B. Hands-on experience with field techniques in wildlife management focusing on various methods of conducting indices, estimates, and censuses of wildlife populations. Includes capture and handling of amphibians, reptiles, birds, and mammals by use of drift fences, cover boards, mist nets, box traps, and dart guns.

**NRMT 470 Natural Resources Management (4)** 85 semester hours. For NRMT majors only. Field work and independent research on watersheds. Intensive seminar on resource management planning and report preparation.

**NRMT 479 Tropical Ecology and Resource Management (1-6)** Prerequisites: BSCI106, an introductory economics course, and permission of instructor. Repeatable to 10 credits if content differs. Tropical ecosystems and issues of human use and impact. Includes lectures which lead up to an off-campus trip in a tropical environment.

**NRMT 487 Conservation of Natural Resources I (3)** Formerly AEED 487. Designed primarily for teachers. Study of state's natural resources: soil, water, fisheries, wildlife, forests and minerals; natural resources problems and practices. Extensive field study. Concentration on subject matter. Taken concurrently with NRMT 497 in summer season.

**NRMT 489 Field Experience (1-4)** Prerequisite: permission of department. Repeatable to 6 credits. Formerly AEED 489. Planned field experience for both major and non-major students.

**NRMT 497 Conservation of Natural Resources II (3)** Formerly AEED 497. Designed primarily for teachers. Study of state's natural resources: soil, water, fisheries, wildlife, forests and minerals; natural resources problems and practices. Extensive field study. Methods of teaching conservation included. Taken concurrently with NRMT 487 in summer season.

**NRMT 499 Special Problems (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs.

## NRSC – Natural Resource Sciences

**NRSC 100 International Crop Production-Issues and Challenges in the 21st Century (3)** Examines the role of crop production in elevating humans out of poverty in developing countries. It will introduce students to the basic principles of plant and soil science underlying the international production of food crops and world food security. The role of multinational agencies such as the World Bank in the promotion of sustainable crop production using environmentally-sound technologies will also be discussed.

**NRSC 105 Soil and Environmental Quality (3)** Two hours of lecture and one hour of discussion/recitation per week. Formerly AGRO 105. Soil as an irreplaceable natural resource, the importance of soils in the ecosystem, soils as sources of pollution, and soils as the media for the storage, assimilation or inactivation of pollutants. Acid rain, indoor radon, soil erosion and sedimentation, nutrient pollution of waters, homeowners' problems with soils, and the effect of soils on the food chain.

**NRSC 171 Introduction to Urban Forestry (4)** Three hours of lecture and three hours of laboratory per week. Not open to students who have completed NRSC271. Credit will be granted for only one of the following: NRSC171 or NRSC271. An introduction to the practice and importance of urban forestry. Topics range from broad aspects of natural resource issues affecting the urban ecosystem to the management and maintenance of urban tree plantings.

**NRSC 200 Fundamentals of Soil Science (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: CHEM103, or CHEM131 and CHEM132; or permission of department. Credit will be granted for only one of the following: AGRO202 or NRSC200. Formerly AGRO 202. Study and management of soils as natural bodies, media for plant growth, and ecosystem components. Morphology, composition, formation, and conservation of soils. Chemical, biological, and physical properties are discussed in relation to the production of plants, the functioning of hydrologic and nutrient cycles, the protection of environmental quality, and engineering uses of soils.

**NRSC 308 Field Soil Morphology (1-2)** One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Formerly AGRO 308. Intensive field study of soils with particular emphasis on soil morphology, soil classification, and agricultural and urban soil interpretations. Focus in fall semesters is on soils of the Northeast U.S. Focus in spring semesters is on soils outside the Northeast region. The lab period is devoted to field trips, and student efforts culminate in a mandatory extended field trip.

**NRSC 388 Honors Thesis Research (3-6)** Prerequisite: admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Formerly AGRO 388. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

**NRSC 389 Internship (1-3)** Prerequisite: permission of department. For NRSC and LARC majors only. Formerly AGRO 386/HORT 389. Junior standing. Repeatable to 6 credits if content differs. Credit will be given for practical work carried out at one or more horticultural, agronomic, landscape industries, botanical gardens, or arboreta under formally arranged internships.

**NRSC 398 Seminar (1)** One hour of lecture per week. Prerequisite: Senior standing. For NRSC and LARC majors only. Formerly AGRO/HORT 398. Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of natural resource sciences, horticulture and agronomy.

**NRSC 400 Water and Nutrient Planning for the Nursery and Greenhouse Industry (3)** Prerequisites: CHEM103, or CHEM131 and CHEM132; and NRSC200 (formerly AGRO202) or p.d. Recommended: PLSC456 (formerly HORT456) or PLSC432 (formerly HORT432). Credit will be granted for only one of the following: HORT400 or NRSC400. Formerly HORT 400. Skills will be developed in order to write nutrient management plans for the greenhouse and nursery industry. Completion of this course can lead to professional certification in nutrient planning by the State of Maryland after MDA examinations are passed.

**NRSC 411 Principles of Soil Fertility (3)** Prerequisite: NRSC200 or equivalent. Credit will be granted for only one of the following: AGRO411 or NRSC411. Formerly AGRO 411. Soil factors affecting plant growth and quality with emphasis on the bio-availability of mineral nutrients. The management of soil systems to enhance plant growth by means of crop rotations, microbial activities, and use of organic and inorganic amendments.

**NRSC 413 Soil and Water Conservation (3)** Three hours of lecture and two hours of laboratory per week. Prerequisite: NRSC200. Credit will be granted for only one of the following: AGRO413 or NRSC413. Formerly AGRO 413. Importance and causes of soil erosion and methods of soil erosion control. Effects of conservation practices on soil physical properties and the plant root environment. Irrigation and drainage as related to water use and conservation.

**NRSC 414 Soil Morphology, Genesis and Classification (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: NRSC200 (formerly AGRO202). Credit will be granted for only one of the following: AGRO414 or NRSC414. Formerly AGRO 414. Processes and factors of soil genesis. Taxonomy of soils of the world by U.S. System. Soil morphological characteristics, composition, classification, survey and field trips to examine and describe soils.

**NRSC 415 GIS Application in Soil Science (4)** Two hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: NRSC200 (formerly AGRO202). Credit will be granted for only one of the following: AGRO415 or NRSC415. Formerly AGRO 415. Introduction to geospatial analysis of soil and related resources. Topics will include understanding the nature and portrayal of digital soils data in soil surveys, the use, analysis, and application of soil survey and other spatial data types (topography, hydrography, etc.), uncertainty and validation of spatial data, and methods in geospatial analysis such as mapping, landscape analysis, and spatial statistics. Analyses will be performed primarily with ESRI ArcGIS software.

**NRSC 417 Soil Hydrology and Physics (3)** Two hours of lecture and three hours of laboratory per week. Prerequisites: NRSC200 (formerly AGRO202) and a course in physics; or permission of department. Credit will be granted for only one of the following: AGRO417 or NRSC417. Formerly AGRO 417. A study of soil water interactions: the hydrologic cycle; the unique properties of water and soil; the soil components and their interactions; the field water cycle; transport processes involving water, heat and solutes; human effects on soil and groundwater; as well as the measurement, prediction, and control of the physical processes taking place in and through the soil.

**NRSC 420 Soil Physical Properties Laboratory (1)** Three hours of laboratory per week. Pre- and corequisites: NRSC417. Credit will be granted for only one of the following: AGRO420 or NRSC420. Formerly AGRO 420. A study of methods used in measuring static and dynamic soil physical properties. Implications from hands-on mastery of these techniques include an increased understanding of soil physical components, soil-water interactions, as well as the measurement, prediction, and control of the physical processes taking place in and through the soil.

**NRSC 421 Soil Chemistry (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: NRSC200 (formerly AGRO202). Credit will be granted for only one of the following: AGRO421 or NRSC421. Formerly AGRO 421. The chemistry and composition of mineral and organic colloids in soils, including ion exchange, oxidation-reduction, acidity, surface charge, and solution chemistry. Lectures and readings pertain to plant nutrition, waste disposal, and groundwater quality.

**NRSC 422 Soil Microbiology (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: NRSC200 (formerly AGRO202), CHEM104 or permission of department. Formerly AGRO 422. Relationship of soil microorganisms to the soils' physical and chemical properties. Nitrogen fixation, mycorrhizae-plant interactions and microbially mediated cycling.

**NRSC 423 Soil-Water Pollution (3)** Prerequisites: NRSC200 (formerly AGRO202) and CHEM104 or permission of department. Credit will be granted for only one of the following: AGRO423 or NRSC423. Formerly AGRO 423. Reaction and fate of pesticides, agricultural fertilizers, industrial and animal wastes in soil and water with emphasis on their relation to the environment.

**NRSC 424 Field Study in Soil Morphology (4)** One hour of lecture and nine hours of laboratory per week. Prerequisite: NRSC200. Credit will be granted for only one of the following: NRSC424 or NRSC608B. Formerly NRSC 608B. The fundamentals of making morphological descriptions of soils, using standard techniques, terminology, and abbreviations of the National Cooperative Soil Survey. Given a regional perspective and reasonable assumptions regarding soil properties, students should become competent to classify soils which they have described in the field and also make interpretations concerning the suitability of soils for various potential uses.

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**NRSC 425 Terrestrial Bioremediation (3)** Two hours of lecture and two hours of discussion/recitation per week. Prerequisite: one course in biology; and CHEM103 or CHEM131 and CHEM132; or permission of department. Formerly AGRO 425. Biologically based methods for the remediation of contaminated soil. Bioremediation using bacteria, fungi and higher plants, of both organic and inorganic contaminants in soil will be addressed.

**NRSC 440 Crops, Soils and Civilization (3)** Credit will be granted for only one of the following: AGRO440 or NRSC440. Formerly AGRO 440. Role and importance of crop and soil resources in the development of human civilization. History of crop and soil use and management as they relate to the persistence of ancient and modern cultures.

**NRSC 441 Sustainable Agriculture (3)** Credit will be granted for only one of the following: AGRO441 or NRSC441. Formerly AGRO 441. Environmental, social and economic needs for alternatives to the conventional, high-input farming systems which currently predominate in industrial countries. Strategies and practices that minimize the use of non-renewable resources.

**NRSC 444 Remote Sensing of Agriculture and Natural Resources (3)** Credit will be granted for only one of the following: AGRO444 or NRSC444. Formerly AGRO 444. Interaction of electromagnetic radiation with matter. Application of remote sensing technology to agriculture and natural resource inventory, monitoring and management and related environmental concerns.

**NRSC 454 Environmental Issues in Plant and Soil Sciences (3)** Credit will be granted for only one of the following: AGRO454 or NRSC454. Formerly AGRO 454. Effects of air pollutants such as ozone, sulfur dioxide, acid rain, etc., and soil pollutants such as toxic metals and pesticides on the growth, productivity and quality of crops.

**NRSC 461 Wetland Soils (3)** Two hours of lecture per week, plus four field trips scheduled on Saturday. Prerequisite: NRSC200. Credit will be granted for only one of the following: AGRO461 or NRSC461. Formerly AGRO 461. The soils of wetlands including hydrology, chemistry, genesis, and taxonomy are discussed. The understanding of federal and regional guidelines to wetland soils are covered with an emphasis on validating interpretations through field observations. Saturday field trips are required.

**NRSC 471 Forest Ecology (3)** Prerequisite: BSCI106 or PLSC201. An understanding of the forest ecosystem, its structure and the processes that regulate it are provided. It also considers changes that occur in forests, the interaction of environment and genetics in promoting ecosystem sustainability, and the role of human influences on urban forest ecosystems.

**NRSC 472 Capstone-Urban Forest Project Management (3)** Prerequisites: NRSC200, NRSC272, and NRSC471. Senior standing. For NRSC majors only. Students will synthesize the ideas and information learned from their studies in urban forestry. Working in teams, students will complete projects involving real-world issues. Student projects will use scientific, social, political and ethical considerations in an interdisciplinary approach to provide solutions to their problem.

**NRSC 474 Silviculture (4)** Three hours of lecture and two hours of laboratory per week. Prerequisite: PLSC100 or BSCI106 or permission of instructor. Recommended: PLSC253 or PLSC254. Junior standing. Silviculture is the science of forest stand dynamics and the biotic and abiotic factors affecting it. Issues addressed will be related to forest stand development, from regeneration to harvesting and the sustainable management for multiple uses. Topics covered will be related to natural and managed stands in both rural and urban environments.

**NRSC 499 Special Topics in Natural Resource Sciences (1-4)** Prerequisites: NRSC200 (formerly AGRO202), or permission of department. Credit will be granted for only one of the following: AGRO499 or NRSC499. Formerly AGRO 499. A lecture and/or laboratory series organized to study a selected phase of Natural Resource Sciences not covered by existing courses. Credit according to time scheduled and organization of the course.

### PERS – Persian

**PERS 101 Elementary Persian I (4)** Not open to native/fluent speakers of Persian. Credit will be granted for only one of the following: PERS101 or FOLA138K. Formerly FOLA 138K. Introduction to the alphabet, pronunciation patterns, greetings, basic structures, and other fundamentals, with emphasis on oral and aural skills.

**PERS 102 Elementary Persian II (4)** Not open to native/fluent speakers of Persian. Prerequisite: PERS101 or equivalent. Credit will be granted for only one of the following: PERS102 or FOLA139K. Formerly FOLA 139K. Continuation of PERS101 with emphasis on the use of formal language, vocabulary building, and graded reading.

**PERS 353 Iranian Life in Literature and Film (3)** Treats major themes in modern literature and life of Iranians. Topics examined include Iranian identity, religious traditions, modern life, and expatriate communities.

**PERS 452 Modern Persian Literature: A Survey (3)** Prerequisite: permission of department. Surveys development of poetry and prose in the Persian-speaking world in modern times. Periods and genres. Content varies. Mastery of Persian is required.

### PHIL – Philosophy

**PHIL 100 Introduction to Philosophy (3)** An introduction to the literature, problems, and methods of philosophy either through a study of some of the main figures in philosophic thought or through an examination of some of the central and recurring problems of philosophy.

**PHIL 140 Contemporary Moral Issues (3)** The uses of philosophical analysis in thinking clearly about such widely debated moral issues as abortion, euthanasia, homosexuality, pornography, reverse discrimination, the death penalty, business ethics, sexual equality, and economic justice.

**PHIL 170 Introduction to Logic (3)** Development of analytical reasoning skills through study of formal logics, reasoning systems, and fallacious inference patterns.

**PHIL 209 Philosophical Issues (3)** Repeatable to 6 credits if content differs. An examination of selected philosophical issues of general interest.

**PHIL 230 Philosophy of the Arts (3)** A survey of theoretical perspectives on the arts from Plato to the present, along with critical examination of specific works of art. Analysis of concepts central to thought about art, such as beauty, form, content, expression, representation, interpretation, creation, style, medium, realism, aesthetic experience, and aesthetic value.

**PHIL 233 Philosophy in Literature (3)** Reading and philosophical criticism of fiction, poetry, and drama, dealing with issues of moral, religious, and metaphysical significance.

**PHIL 234 Fundamental Concepts of Judaism (3)** Also offered as JWST250. Not open to students who have completed JWST250. Credit will be granted for only one of the following: PHIL234 or JWST250. A conceptional introduction to Judaism, analyzing its fundamental concepts from both analytical and historical perspectives. Discussion of "normative" Judaism as well as other conceptions of Judaism. Topics include: God, the Jewish people, authority, ethics, the sacred and the profane, particularism and universalism.

**PHIL 235 Authority, Faith, and Reason in Judaism (3)** Also offered as JWST251. Not open to students who have completed JWST251 or HEBR298J. Credit will be granted for only one of the following: PHIL235 or JWST251. A broad survey of the concepts of authority, faith, and reason in Jewish tradition from the Bible to the modern period, and their interrelationships.

**PHIL 236 Philosophy of Religion (3)** A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality.

**PHIL 245 Political and Social Philosophy I (3)** A critical examination of such classical political theories as those of Plato, Hobbes, Locke, Rousseau, Mill, Marx, and such contemporary theories as those of Hayek, Rawls, and recent Marxist thinkers.

**PHIL 250 Philosophy of Science I (3)** Main issues in the philosophy of science. Special attention to the ways scientific developments have influenced the philosophy of science and how philosophy of science has influenced scientific progress. Case studies of selected historical episodes in which science and philosophy have interacted significantly, focusing on the physical, biological, or social sciences.

**PHIL 256 Philosophy of Biology I (3)** Issues in the discovery and justification of biological theories and models. Focus on cases from twentieth century biology, such as the genetic revolution or evolutionary theory.

**PHIL 261 Philosophy of the Environment (3)** Not open to students who have completed HONR218F or PHIL209N. Formerly HONR 218F. An evaluation of different kinds of arguments for the claim that the natural environment should be preserved. Perspectives cut across the disciplines of philosophy (environmental ethics, philosophies of nature), economics (cost-benefit analysis), and biology (evolution, ecology, environmental studies).

**PHIL 271 Symbolic Logic I (3)** Prerequisite: PHIL170 or CMSC250; or permission of department. Formerly PHIL 371. The formal analysis of deductive reasoning, providing familiarity with techniques of formal deduction in propositional logic and quantification theory, as well as some knowledge of basic concepts of formal semantics (truth tables, models).

**PHIL 273 Logic for Philosophy (3)** Major concepts underlying the modern formal logic development by Frege and Russell and their importance in contemporary philosophy.

**PHIL 280 Perspectives on the Mind: Philosophy and Cognitive Science (3)** The role of representation and reasoning in cognition considered from the differing perspectives of the cognitive-science disciplines: linguistics, philosophy, neuroscience, psychology and computer science.

**PHIL 282 Action and Responsibility (3)** Problems in ethics and philosophy of mind concerning such topics as personal agency, moral motivation, guilt, free will, and responsibility.

**PHIL 308 Studies in Contemporary Philosophy (3)** Prerequisite: six credit hours in philosophy. Repeatable to 6 credits if content differs. Problems, issues, and points of view of current interest in philosophy.

**PHIL 310 Ancient Philosophy (3)** Prerequisite: six credit hours in philosophy or classics. A study of the origins and development of philosophy and science in ancient Greece, focusing on the pre-Socratics, Socrates, Plato, and Aristotle.

**PHIL 320 Modern Philosophy (3)** Prerequisite: six credit hours in philosophy. A study of major philosophical issues of the 16th, 17th, and 18th centuries through an examination of such philosophers as Descartes, Newton, Hume, and Kant.

**PHIL 324 Existentialism (3)** Prerequisite: six credit hours in philosophy. A study of authors such as Kierkegaard, Nietzsche, Heidegger, Sartre, and Camus on issues of human morality, freedom, and suffering.

**PHIL 328 Studies in the History of Philosophy (3)** Prerequisite: six credit hours of philosophy. Repeatable to 6 credits if content differs. Problems, issues, and points of view in the history of philosophy.

**PHIL 332 Philosophy of Beauty (3)** Prerequisites: six credit hours in philosophy, literature, or the arts. Philosophical theories, historical and contemporary, of beauty, sublimity, and other aesthetic qualities, of aesthetic experience, and of aesthetic judgment.

**PHIL 334 Philosophy of Music (3)** Prerequisite: three credit hours in philosophy or music. The nature, meaning, and purpose of music. Analysis of the concepts of creativity, form, expression, and representation as they relate to music. Theories of music listening and of musical evaluation. Readings from philosophers, composers, critics, and psychologists.

**PHIL 340 Making Decisions (3)** Prerequisite: three credit hours in philosophy. An examination of various approaches to decision making in personal, professional, and public life. Conflict resolution, the logic of decision, moral aspects of decision making, and standard biases in judgment.

**PHIL 341 Ethical Theory (3)** Prerequisite: six credit hours in philosophy. Junior standing. A critical examination of classical and contemporary systems of ethics, such as those of Aristotle, Kant, Mill, and Rawls.

**PHIL 342 Moral Problems in Medicine (3)** Prerequisite: PHIL100, PHIL140, or permission of department. A critical examination of the moral dimensions of decision-making in health related contexts. Readings are drawn from philosophical, medical, and other sources.

**PHIL 347 Philosophy of Law (3)** Prerequisite: three credit hours in philosophy. Credit will be granted for only one of the following: PHIL347 or PHIL447. Formerly PHIL 447. Examination of fundamental concepts related to law, e.g. legal systems, law and morality, justice, legal reasoning, responsibility.

**PHIL 354 Philosophy of Physics (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: PHYS260 or MATH220 or equivalent; or permission of department. Recommended: PHYS270, PHYS401. Not open to students who have completed PHIL452. Credit will be granted for only one of the following: PHIL354 or PHIL452. An introduction to current issues at the interface of physics and philosophy, associated with our current picture of the physical world as fundamentally quantum mechanical. Topics include the debate between Einstein and Bohr on the objectivity and completeness of the quantum description, nonlocality and Bell's theorem, realism and the measurement problem, irreversibility and the arrow of time.

**PHIL 360 Philosophy of Language (3)** Prerequisite: PHIL170, PHIL173, or PHIL271. An inquiry into the nature and function of language and other forms of symbolism.

**PHIL 362 Theory of Knowledge (3)** Prerequisite: six credit hours in philosophy. Not open to students who have completed PHIL462. Formerly PHIL 462. Some central topics in the theory of knowledge, such as perception, memory, knowledge, and belief, skepticism, other minds, truth, and the problems of induction.

**PHIL 364 Metaphysics (3)** Prerequisite: six credit hours in philosophy. Not open to students who have completed PHIL464. Formerly PHIL 464. The study of some central metaphysical concepts and issues including the nature and validity of metaphysical thinking, universals, identity, substance, time, God, and reality.

**PHIL 366 Philosophy of Mind (3)** Prerequisite: six credit hours in philosophy. Not open to students who have completed PHIL380. An introduction to core issues in the philosophy of mind, focusing especially on the basic metaphysical question of dualism versus physicalism.

**PHIL 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**PHIL 407 Gay and Lesbian Philosophy (3)** An examination in historical and social context of personal, cultural, and political aspects of gay and lesbian life, paying particular attention to conceptual, ontological, epistemological, and social justice issues.

**PHIL 408 Topics in Contemporary Philosophy (3)** Prerequisite: PHIL320. Repeatable if content differs. An intensive examination of contemporary problems and issues. Source material will be selected from recent books and articles.

**PHIL 412 The Philosophy of Plato (3)** Prerequisite: six credit hours in philosophy. A critical study of selected dialogues.

**PHIL 414 The Philosophy of Aristotle (3)** Prerequisite: six credit hours in philosophy. A critical study of selected portions of Aristotle's writings.

**PHIL 416 Medieval Philosophy (3)** Prerequisite: six credit hours in philosophy. A study of philosophical thought from the fourth to the fourteenth centuries. Readings selected from Christian, Islamic, and Jewish thinkers.

**PHIL 417 The Golden Age of Jewish Philosophy (3)** Prerequisite: three credit hours in philosophy or permission of department. Also offered as JWST452. Not open to students who have completed JWST452. Credit will be granted for only one of the following: PHIL417 or JWST452. Jewish philosophy from Maimonides in the 12th century to the expulsion of the Jews from Spain at the end of the 15th century. Topics include the limitations of human knowledge, creation of the world, foreknowledge and free will, and the existence of God.

**PHIL 424 The Philosophy of Spinoza (3)** Prerequisite: six credit hours in philosophy or permission of department. Also offered as JWST453. Not open to students who have completed JWST453. Credit will be granted for only one of the following: PHIL424 or JWST453. An investigation of the metaphysical, ethical and political thought of the 17th century philosopher Benedict Spinoza.

**PHIL 425 Modern Jewish Philosophy (3)** Prerequisite: six credit hours in philosophy or permission of department. Also offered as JWST455. Not open to students who have completed JWST455. Credit will be granted for only one of the following: JWST455 or PHIL425. A study of philosophy in the nineteenth century through an examination of such figures as Hegel, Marx, Kierkegaard, Nietzsche, and Mill.

**PHIL 426 Twentieth Century Analytic Philosophy (3)** Prerequisite: permission of department. Senior standing. Credit will be granted for only one of the following: PHIL326 or PHIL426. Formerly PHIL 326. Major issues in twentieth century analytic philosophy examined through such philosophers as Frege, Russell, Carnap, Moore and Wittgenstein.

**PHIL 427 Wittgenstein (3)** Prerequisite: six credit hours in philosophy or permission of department. The early and late works of Wittgenstein: atomism, logic, and the picture theory in the Tractatus; roles, meaning, criteria, and the nature of mental states in the Philosophical Investigations and other posthumous writings.

**PHIL 428 Topics in the History of Philosophy (3)** Prerequisites: PHIL310 and PHIL320; or permission of department. Repeatable if content differs.

**PHIL 431 Aesthetic Theory (3)** Prerequisite: six credit hours in philosophy or permission of department. Study of the theory of the aesthetic as a mode of apprehending the world and of the theory of criticism, its conceptual tools and intellectual presuppositions.

**PHIL 433 Issues in Jewish Ethics and Law (3)** Prerequisite: three credit hours in philosophy or Jewish studies (excluding Hebrew language), or permission of department. Also offered as JWST451. Not open to students who have completed JWST451 or HEBR451. Credit will be granted for only one of the following: PHIL433, HEBR451 or JWST451. Philosophical and meta-legal questions concerning the nature of Jewish law and its relation to morality.

**PHIL 440 Contemporary Ethical Theory (3)** Prerequisite: PHIL341. Contemporary problems having to do with the meaning of the principal concepts of ethics and with the nature of moral reasoning.

**PHIL 445 Contemporary Political Philosophy (3)** Prerequisite: three credit hours in philosophy or political theory or permission of department. Sophomore standing. Major trends in contemporary political philosophy: liberal, libertarian, communitarian, socialist, feminist.

**PHIL 446 Law, Morality, and War (3)** Prerequisite: GVPT300, GVPT401, PHIL341, or permission of department. Also offered as GVPT403. An exploration of fundamental moral and legal issues concerning war.

**PHIL 450 Scientific Thought I (3)** Prerequisite: three credit hours in philosophy or a major in science. The development of science, its philosophical interpretations and implications, and views of its methods, from the ancients through Newton and Leibniz.

**PHIL 451 Scientific Thought II (3)** Prerequisite: three credit hours in philosophy or a major in science. The development of science, its philosophical interpretations and implications, and views of its methods, from the death of Newton to the early twentieth century.

**PHIL 453 Philosophy of Science II (3)** Prerequisite: PHIL250, an upper-level course in philosophy, or a major in science. A comprehensive survey of developments in the main problems of the philosophy of science from logical positivism to the present. The nature of theories, models, laws, and counterfactuals, testing, inductive logic, and confirmation theory, experimental methodology, measurement, explanation, concept formation, growth of scientific knowledge, and scientific realism.

**PHIL 454 Philosophy of Space and Time (3)** Prerequisite: six credit hours in philosophy. Senior standing. A nontechnical investigation of philosophical issues in the foundations of physics. Topics may include traditional philosophical problems of space and time, metaphysical issues about the nature of particles and fields, and philosophical problems associated with the introduction of probability into physics, such as the problem of irreversibility in thermodynamics and the problem of objectivity in quantum theory.

**PHIL 456 Philosophy of Biology II (3)** Prerequisite: PHIL250 or PHIL256 or a Life Science major or permission of department. Questions about concepts, reasoning, explanation, etc., in biology, and their relations to those of other areas of science. Case studies of selected aspects of the history of biology, especially in the twentieth century.

**PHIL 458 Topics in the Philosophy of Science (3)** Prerequisite: PHIL250 or permission of department; when the topic for a given semester demands, additional philosophical or scientific prerequisites may be required by the instructor. Repeatable to 6 credits if content differs. A detailed examination of a particular topic or problem in philosophy of science.

**PHIL 461 Theory of Meaning (3)** Prerequisite: six credit hours in philosophy. Theories about the meaning of linguistic expressions, including such topics as sense and reference, intentionality and necessity, and possible-world semantics, through an examination of such writers as Mill, Frege, Wittgenstein, Quine, and Kripke.

**PHIL 470 Logical Theory (3)** Prerequisite: PHIL271 or permission of instructor. This course will treat a selection of the most important topics in modern logic: alternative proof-theoretic presentations of logical systems, completeness proofs for classical propositional and first-order logic, some basic computability theory, basic limitative results (such as Godel's incompleteness theorems), and some results concerning second-order logic. The primary focus of the course is a study of these fundamental topics, but we will also discuss some of the philosophical issues they raise.

**PHIL 474 Induction and Probability (3)** Prerequisite: permission of department. A study of inferential forms, with emphasis on the logical structure underlying such inductive procedures as estimating and hypothesis-testing. Decision-theoretic rules relating to induction will be considered, as well as classic theories of probability and induction.

**PHIL 478 Topics in Philosophical Logic (3)** Prerequisite: PHIL271 or permission of department. Recommended: PHIL470. Repeatable to 9 credits if content differs. Methods and results of philosophical logic, the application of logical techniques to the study of concepts or problems of philosophical interest. Content will vary, either treating a particular logical area in detail—such as modal logic, conditional logic, deontic logic, intuitionistic or relevance logic, theories of truth and paradox—or surveying a number of these different areas.

**PHIL 480 Philosophy of Emotion (3)** Prerequisite: six credit hours in philosophy, at least one 300-level or above; or permission of department. Philosophic contributions to the debate about the nature of emotions and their role in rational and moral motivation.

**PHIL 481 Philosophy of Psychology: Representation (3)** Prerequisite: six credit hours in philosophy; one of which must be PHIL280 or PHIL366. Semantics and representations within computational framework: intentionality, explicit vs. implicit representation, syntax vs. semantics of thought, connectionist approaches, images, classical vs. prototype theories of concepts.

**PHIL 482 Philosophy of Psychology: Subjectivity (3)** Prerequisite: six credit hours in philosophy; one of which must be PHIL280 or PHIL366. The nature of subjectivity: problems of "point of view," the "qualities" or "feel" of things, emotions, consciousness - whether these phenomena can be captured by a computational theory of mind.

**PHIL 484 Reason, Self and Will (3)** Prerequisite: six credit hours in philosophy, at least one 300-level or above; or permission of department. Issues in philosophy of mind, ethics, and neighboring areas of psychology and related fields concerning such topics as: autonomy, freedom of action, free will; weakness of will and practical reasoning; the nature of the self or person; the sources of moral motivation.

**PHIL 485 Philosophy of Neuroscience (3)** Prerequisite: six credit hours in philosophy, one of which should be PHIL250, PHIL256, PHIL280, or PHIL366; or permission of department. Philosophical and methodological issues relating to brain science, including: the place of neuroscience in cognitive science, the nature of mental representation and processing in brains, bounded-resonance models in neuroanatomy and neurophysiology.

**PHIL 488 Topics in Philosophy of Cognitive Studies (3)** Prerequisite: three credit hours in philosophy or permission of department. Repeatable to 9 credits if content differs. Examination of a particular topic or problem in philosophy of cognitive studies.

**PHIL 498 Topical Investigations (1-3)**

## PHYS – Physics

**PHYS 101 Contemporary Physics - Revolutions in Physics (3)** Prerequisite: eligibility for placement in MATH140 or MATH220. Not open to students who have completed PHYS111. For non-science students who are interested in the evolution of scientific thought and its present day significance. Historical, philosophic, experimental and theoretical aspects of physics are presented. Topics in mechanics, relativity, electricity and magnetism, and nuclear physics are covered.

**PHYS 102 Physics of Music (3)** Prerequisite: Placement in MATH110 or higher. Credit not applicable towards the minimum requirements for a major in physics and astronomy. A study of the physical basis of sound, acoustical properties of sound, the human ear and voice, reproduction of sound, electronic music, acoustical properties of auditoriums, and other selected topics.

**PHYS 103 Physics of Music Laboratory (1)** Two hours of laboratory per week. Pre- or corequisite: PHYS102. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Optional laboratory to accompany PHYS 102. Laboratory experiments, including the velocity of sound, sound quality and wave shape, traveling and standing waves, fourier synthesis and analysis, musical synthesizer, psychoacoustics, and audio equipment.

**PHYS 104 How Things Work: Science Foundations (3)** Prerequisite: Placement in MATH110 or higher. This is a course with a non-mathematical emphasis designed to study the basics of mechanical, electrical, and optical devices that are commonly found in the world around us. The general approach would be to look inside things to observe how they work.

**PHYS 106 Light, Perception, Photography, and Visual Phenomena (3)** Credit not applicable towards the minimum requirements for a major in physics and astronomy. Intended for the general student, this course will cover topics in optics which require minimal use of mathematics. Principles of optics, lenses, cameras, lasers and holography, physics of the eye, color vision and various visual phenomena such as rainbows.

**PHYS 107 Light, Perception, Photography and Visual Phenomena Laboratory (1)** Two hours of laboratory per week. Pre- or corequisite: PHYS106. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Optional laboratory to accompany PHYS 106. Laboratory experiments include geometrical optics (lenses, cameras, eye), optical instruments (telescope, binoculars), photography, perception, color phenomena, and wave phenomena.

**PHYS 111 Physics in the Modern World (3)** A survey course in general physics emphasizing the role that physics plays in science, technology, and society today. The course is concept oriented and minimal use of mathematics is made. Intended for the general student; does not satisfy the requirements of the professional schools.



## 234 Approved Courses

**PHYS 115 Inquiry into Physics (4)** Five hours of laboratory per week. Recommended: High school physics. For elementary education, early childhood majors only. Not open to students who have completed PHYS117. Credit will be granted for only one of the following: PHYS115 or PHYS117. Intended for students majoring in neither the physical nor the biological sciences. Use of laboratory-based and inquiry-based methods to study some of the basic ideas of physical sciences.

**PHYS 117 Introduction to Physics (4)** Three hours of lecture and two hours of laboratory per week. Prerequisite: qualification to enter MATH110. Intended for students majoring in neither the physical nor biological sciences. A study of the development of some of the basic ideas of physical science.

**PHYS 121 Fundamentals of Physics I (4)** Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: MATH112 or MATH115. The first part of a two-semester course in general physics treating the fields of mechanics, heat, sound, electricity, magnetism, optics, and modern physics. Together with PHYS122, this generally satisfies the minimum requirement of medical and dental schools.

**PHYS 122 Fundamentals of Physics II (4)** Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS121 or equivalent. A continuation of PHYS 121, which together with it, generally satisfies the minimum requirement of medical and dental schools.

**PHYS 141 Principles of Physics (4)** Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Corequisite: MATH141 or MATH221. Credit will not be granted for PHYS171 and PHYS161 or PHYS141 or former PHYS191. The first of a two-semester series in general physics. The first semester covers the fields of mechanics, thermodynamics, and special relativity. This survey course will use calculus and is recommended for chemistry and zoology majors. It also satisfies the requirements of medical and dental schools.

**PHYS 142 Principles of Physics (4)** Prerequisite: PHYS141 or equivalent. Credit will be granted for only one of the following: PHYS142, PHYS260 and PHYS261 (formerly: PHYS262) or PHYS272. A continuation of PHYS 141 covering waves, electricity and magnetism, optics and modern physics.

**PHYS 161 General Physics: Mechanics and Particle Dynamics (3)** Three hours of lecture and one hour of discussion/recitation per week. Pre- or corequisite: MATH141. Credit will not be granted for PHYS171 and PHYS161 or PHYS141 or former PHYS191. First semester of a three-semester calculus-based general physics course. Laws of motion, force, and energy; principles of mechanics, collisions, linear momentum, rotation, and gravitation.

**PHYS 165 Introduction to Programming in the Physical Sciences (3)** Prerequisite: PHYS141, PHYS161 or PHYS171; or 3-5 on AP PHYS exam. Introduction to programming using examples in the physical sciences. Provides instruction in the techniques of upper-level languages such as Fortran, C, and Pascal, as well as an introduction to the object oriented programming techniques used in Python, C++ and Java. Includes strong component of visualization and graphing.

**PHYS 170 Professional Physics Seminar (1)** Corequisite: MATH140. Recommended: high school physics. Provides a look at some of the major developments of current interest in physics research and discusses the activities physicists undertake in research, education, industry, government, and other areas of the economy.

**PHYS 171 Introductory Physics: Mechanics and Relativity (3)** Prerequisite: MATH140 and a high school physics course or permission of department. Corequisite: MATH141. Credit will not be granted for PHYS171 and PHYS161 or PHYS141 or former PHYS191. First semester of a three semester sequence for physics majors and those desiring a rigorous preparation in the physical sciences: kinematics, Newton's laws, energy and work, linear and angular momenta, temperature and pressure, ideal gas law, and special relativity.

**PHYS 174 Physics Laboratory Introduction (1)** Three hours of laboratory per week. Corequisite: MATH140. Recommended: high school physics. Introduces students to the techniques of data gathering and analysis. This course will lay a foundation for higher-level labs in physics and the physical sciences. Students will learn to use laboratory equipment such as calipers, meters, oscilloscopes, and computer interfaces. Techniques of measurement and error analysis will be presented. Students will be taught to use the computer for data analysis with an emphasis on using spreadsheets.

**PHYS 221 General Physics For Science Teachers I (4)** Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: A high school physics course. Pre- or corequisite: MATH 140 or MATH220. The first part of a two-semester sequence in physics, stressing physical insight, for prospective secondary school science and mathematics teachers.

**PHYS 260 General Physics: Vibration, Waves, Heat, Electricity and Magnetism (3)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH141 and PHYS161. Corequisite: PHYS261. Credit will be granted for only one of the following: PHYS142; PHYS260 and PHYS 261 (Formerly: PHYS262) or PHYS272. Formerly PHYS 262. Second semester of a three-semester calculus-based general physics course. Vibrations, waves, fluids; heat, kinetic theory, and thermodynamics; electrostatics, circuits, and magnetism. PHYS260 and PHYS261 must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS260 and PHYS261.

**PHYS 261 General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (Laboratory) (1)** Three hours of laboratory per week. Corequisite: PHYS260. Formerly PHYS 262A. Lab includes experiments on mechanics, vibrations, waves, heat, electricity and magnetism. PHYS260 and PHYS261 (lab) must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS260 and PHYS261.

**PHYS 270 General Physics: Electrodynamics, Light, Relativity and Modern (3)** Physics Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: PHYS260, PHYS261 and MATH241. Corequisite: PHYS271. Credit will be granted for only one of the following: PHYS270 and PHYS271 (Formerly: PHYS263) or PHYS273. Formerly PHYS 263. Third semester of a three-semester calculus-based general physics course. Electrodynamics, Maxwell's equations and electromagnetic waves, geometrical optics, interference, diffraction, special theory of relativity, and modern physics. PHYS270 and PHYS271 (lab) must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS270 and PHYS271.

**PHYS 271 General Physics: Electrodynamics, Light, Relativity and Modern (1)** Physics (Laboratory) Three hours of laboratory per week. Prerequisite: PHYS261. Corequisite: PHYS270. Formerly PHYS 263A. Lab includes experiments on ac circuits, magnetism, light and modern physics. PHYS270 and PHYS271 (lab) must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS270 and PHYS271.

**PHYS 272 Introductory Physics: Fields (3)** Prerequisites: (PHYS171 or PHYS161) and MATH141. Corequisite: MATH241. Credit will be granted for only one of the following: PHYS272 or PHYS260 and PHYS261 (Formerly: PHYS262) or PHYS142. Second semester of a calculus based general physics course. Universal gravitation, electric and magnetic fields and potentials, simple circuits, Maxwell's equations in integral form. Continues the application of mathematics to conceptual models, now with more abstract components.

**PHYS 273 Introductory Physics: Waves (3)** Prerequisites: PHYS272, and MATH241. Corequisites: MATH246 or MATH414. Credit will be granted for only one of the following: PHYS270 and PHYS271 (Formerly: PHYS263) or PHYS273. Oscillations and AC circuits using complex variables, Fourier series and integrals, waves on strings, sound; electromagnetic waves from Maxwell's equations in differential form; physical optics.

**PHYS 275 Experimental Physics I: Mechanics and Heat (2)** One hour of lecture and three hours of laboratory per week. Prerequisites: (PHYS171 or PHYS161) and PHYS174. Corequisite: PHYS272. Methods and rationale of experimental physics. Intended for physics majors and science and engineering students who desire a more rigorous approach. Experiments chosen from the areas of mechanics (from PHYS171), gas laws, and heats. Theory and applications of error analysis. CORE Physical Science Lab (PL) Course only when taken concurrently with PHYS272.

**PHYS 276 Experimental Physics II: Electricity and Magnetism (2)** Four hours of laboratory per week. Prerequisites: PHYS272 and PHYS275. Credit will be granted for only one of the following: PHYS276 or former PHYS295. Second course in the three semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the fields of electricity and magnetism including electrostatics, magnetostatics, magnetic induction, AC circuits.

**PHYS 299 Special Problems in Physics (1-6)** Prerequisite: permission of department. May be taken no more than twice. Maximum of eight credits applicable to B.S. degree program. Research or special study to complement courses taken elsewhere which are not fully equivalent to those in departmental requirements. Credit according to work done.

**PHYS 305 Physics Shop Techniques (1)** Three hours of laboratory per week. Prerequisite: permission of department. Machine tools, design and construction of laboratory equipment.

**PHYS 318 Topics in Contemporary Physics (3)** Prerequisite: PHYS122 and/or PHYS111 or permission of department. A survey of topics of current research and public interest. Intended for the non-physics or non-science major. Topics covered will include lasers, quantum liquids, cosmology, elementary particles and geophysics.

**PHYS 374 Intermediate Theoretical Methods (4)** Three hours of lecture and one hour of discussion/recitation per week. Prerequisites: PHYS273 and MATH246. Corequisite: MATH240. Introduces or reviews areas of mathematics that are regularly used in upper level and graduate courses in physics, including important areas from complex variables, Fourier analysis, partial differential equations and eigenvalue problems. These methods will be studied in the context of relevant physics applications. A current standard symbolic manipulation program will be introduced and its appropriate use in theoretical analyses will be taught.

**PHYS 375 Experimental Physics III: Electromagnetic Waves, Optics and Modern (3)** Physics Six hours of laboratory per week. Prerequisites: PHYS273 and PHYS276. Credit will be granted for only one of the following: PHYS375 or former PHYS296. Third course in the three-semester introductory sequence. Methods and rationale of experimental physics. Experiments chosen from the areas of electromagnetic waves, optics and modern physics.

**PHYS 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**PHYS 389 Undergraduate Thesis Research (1-6)** Prerequisite: permission of department. For PHYS majors only. Repeatable to 6 credits. Independent directed research and study on a topic selected by the student in consultation with his or her advisor. Final written thesis and oral defense will be expected.

**PHYS 398 Independent Studies Seminar (1-16)** Credit according to work done. Enrollment is limited to students admitted to the independent studies program in physics.

**PHYS 399 Special Problems in Physics (1-3)** Two hours laboratory work per week for each credit. Prerequisite: PHYS405 and permission of department. One to three credits may be taken concurrently each semester. Selected advanced experiments. (Will be given with sufficient demand.)

**PHYS 401 Quantum Physics I (4)** Prerequisite: PHYS273. Corequisites: PHYS374 and MATH240. Credit will be granted for only one of the following: PHYS401 or PHYS421. Formerly PHYS 421. Introduces some quantum phenomena leading to wave-particle duality. Schroedinger theory for bound states and scattering in one dimension. One-particle Schroedinger equation and the hydrogen atom.

**PHYS 402 Quantum Physics II (4)** Prerequisites: PHYS401, and PHYS374, and MATH240. Credit will be granted for only one of the following: PHYS402 or former PHYS422. Formerly PHYS 422. Quantum states as vectors; spin and spectroscopy, multiparticle systems, the periodic table, perturbation theory, band structure, etc.

**PHYS 404 Introduction to Statistical Thermodynamics (3)** Prerequisites: PHYS273 or equivalent, and MATH241. Credit will be granted for only one of the following: PHYS404 or former PHYS414. Formerly PHYS 414. Introduction to basic concepts in thermodynamics and statistical mechanics.

**PHYS 405 Advanced Experiments (3)** Prerequisite: PHYS375. For PHYS majors only. Formerly PHYS 395. Advanced laboratory techniques. Selected experiments from many fields of modern physics. Emphasis on self-study of the phenomena, data analysis, and presentation in report form.

**PHYS 406 Optics (3)** Prerequisite: (PHYS270 and PHYS271 {formerly: PHYS263} or PHYS273 or PHYS301); and MATH 240. Geometrical optics, optical instruments, wave motion, interference and diffraction, and other phenomena in physical optics.

**PHYS 410 Classical Mechanics (4)** Prerequisite: PHYS374. Theoretical foundations of mechanics with extensive application of the methods. Various mathematical tools of theoretical physics.

**PHYS 411 Intermediate Electricity and Magnetism (4)** Prerequisite: PHYS374. Foundations of electromagnetic theory, with extensive applications of the methods. Thorough treatment of wave properties of solutions of Maxwell's equations.

**PHYS 420 Principles of Modern Physics (3)** Prerequisite: (PHYS270 and PHYS271 {formerly: PHYS263} or PHYS273); and MATH246. A survey of atomic and nuclear phenomena and the main trends in modern physics. Appropriate for students in engineering and other physical sciences.

**PHYS 426 Mathematica for Scientists and Engineers (3)** Prerequisites: (PHYS270 and PHYS271 {Formerly: PHYS263} or PHYS273) and MATH241. Provides a working knowledge of the powerful symbolic, numerical, and graphical tools provided by Mathematica for problem solving in science and engineering, and the ability to use functional programming, pattern matching, and rule sets for symbolic and numerical computations. Intended for science and engineering students who are currently taking advanced undergraduate or graduate courses in their field.

**PHYS 428 Physics Capstone Research (2-4)** Prerequisite: permission of instructor. Senior standing. For PHYS majors only. Repeatable to 4 credits. Individual, focused research under the guidance of a faculty member. Discussion, presentations and, if appropriate, research group projects involved. Student must submit final research paper for completion of course. Paper may also serve as thesis required for High Honors in Physics. Not intended as a general “reading course” (see PHYS 499).

**PHYS 429 Atomic and Nuclear Physics Laboratory (3)** Prerequisite: PHYS405. Classical experiments in atomic physics and more sophisticated experiments in current techniques in nuclear physics.

**PHYS 431 Properties of Matter (3)** Prerequisites: MATH241 and (PHYS270 and PHYS271 (formerly: PHYS263)), PHYS 401 or PHYS420. Also offered as ENMA460. Credit will be granted for only one of the following: ENMA460 or PHYS431. Introduction to solid state physics. Electromagnetic, thermal, and elastic properties of metals, semiconductors, insulators and superconductors.

**PHYS 441 Nuclear Physics (3)** Prerequisite: PHYS411 and {PHYS401 or PHYS420}. An introduction to nuclear physics at the pre-quantum-mechanics level. Properties of nuclei; radioactivity; nuclear systematics; nuclear moment; the Shell model, interaction of charged particles and gamma rays with matter; nuclear detectors; accelerators; nuclear reactions; beta decay; high energy phenomena.

**PHYS 451 Introduction to Elementary Particles (3)** Prerequisite: PHYS402. Properties of elementary particles, production and detection of particles, relativistic kinematics, invariance principles and conservation laws.

**PHYS 461 Introduction to Fluid Dynamics (3)** Prerequisite: PHYS270 and PHYS271 (formerly: PHYS263) or PHYS273; and MATH240. Kinematics of fluid flow, properties of incompressible fluids, complex variable methods of analysis, wave motions.

**PHYS 463 Introduction to Plasma Physics (3)** Prerequisite: PHYS411 or ENEE380. Students without the electricity and magnetism prerequisite, but having a familiarity with Maxwell's equations, should check with the instructor. Orbit theory, magneto-hydrodynamics, plasma heating and stability, waves and transport processes.

**PHYS 465 Modern Optics (3)** Prerequisite: PHYS410 and PHYS411 and {PHYS401 or PHYS420}. Designed for students with a background in fundamental optics. Topics in modern optics such as coherence, holography, principles of laser action, electron optics, and non-linear optics.

**PHYS 474 Computational Physics (3)** Prerequisite: permission of department. Credit will be granted for only one of the following: PHYS474 or PHYS499C. Formerly PHYS 499C. Introduction to computational physics. Topics covered include numerical integration of ordinary and partial differential equations, image analysis, Fourier transforms, statistical methods, analysis of data using prepackaged routines, and the Unix programming environment. Emphasis is on the equations of physical systems as applied to physics and astronomy, and on manipulation of laboratory and observational field data. Students complete semester projects.

**PHYS 483 Biophysics and Theoretical Biology (3)** Designed for advanced and mature students who may have only minimal knowledge of biological processes but are well grounded in physics. Areas in bioscience where physics, biophysical chemistry, and mathematical analysis fuse to provide definition for biologic statics and dynamics.

**PHYS 485 Electronic Circuits (4)** Two hours of lecture and four hours of laboratory per week. Prerequisite: PHYS405. Corequisite: PHYS301 or PHYS374. Theory and application to experimental physics of modern semiconductor analog and digital circuits. Emphasis on understanding passive and active elements in practical circuits. Topics span the range from simple transistor circuits to microcomputers.

**PHYS 499 Special Problems in Physics (1-16)** For PHYS majors only. Research or special study. Credit according to work done.

## PLSC – Plant Sciences

**PLSC 100 Introduction to Horticulture (4)** Two hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: HORT100 or PLSC100. Formerly HORT 100. An overview to the art and science of horticulture. Relationships between plant science and plant production, the use of horticultural plants and plant stress as influenced by cultural practices.

**PLSC 101 Introductory Crop Science (4)** Two hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: AGRO100 and AGRO102; or AGRO101 or PLSC101. Formerly AGRO 101. Major crop plants including: anatomy, physiology, morphology, history, use, adaptation, culture, improvement and economic importance.

**PLSC 200 Land Surveying (2)** One hour of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: HORT200 or PLSC200. Formerly HORT 200. Understanding the principles of land surveying such as measurements of distance, elevation and angles, instrumentation, and mapping.

**PLSC 201 Plant Structure and Function (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC100 or PLSC101; and CHEM103 or CHEM131 and CHEM132. Not open to students who have completed NRSC201. Formerly NRSC 201. The relationship between plant structure and function and how the environment influences changes in the physiology to control higher plant growth and development are studied.

**PLSC 202 Management of Horticultural Crops (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC100 (formerly HORT100). Recommended: BSCI105. Credit will be granted for only one of the following: HORT202 or PLSC202. Formerly HORT 202. A study of the principles and practices used in the production of horticultural crops. Management of soils and soilless media, vegetative and reproductive growth and development, pests, harvest, post-harvest environment and marketing will be presented for model commodities.

**PLSC 203 Plants, Genes and Biotechnology (3)** Prerequisite: BSCI103 or BSCI105. Not open to students who have completed NRSC203. Formerly NRSC 203. An overview of the history, genetics, and reproductive mechanisms for agronomic and horticultural plants that examine mechanisms of genetic improvement ranging from traditional plant breeding to tissue culture and genetic engineering. Social and political issues such as germplasm preservation and international intellectual property rights will also be discussed.

**PLSC 253 Woody Plants for Mid-Atlantic Landscapes I (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: BSCI226 or PLSC100 (formerly HORT100). Credit will be granted for only one of the following: HORT253 or PLSC253. Formerly HORT 253. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on native deciduous plant materials.

**PLSC 254 Woody Plants for Mid-Atlantic Landscape II (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: BSCI226 or PLSC100 (formerly HORT100). Credit will be granted for only one of the following: HORT254 or PLSC254. Formerly HORT 254. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on introduced and evergreen plant materials.

**PLSC 255 Landscape Design and Implementation (4)** Two hours of lecture and four hours of laboratory per week. Prerequisite: PLSC253 (formerly HORT253) or PLSC254 (formerly HORT254). Not open to students who have completed LARC141 and LARC341. Credit will be granted for only one of the following: HORT255 or PLSC255. Formerly HORT 255. Principles of landscape architecture applied to residential and commercial landscaping: informal and formal designs and plan graphics.

**PLSC 271 Plant Propagation (3)** Two hours of lecture and three hours of laboratory per week. Prerequisites: BSCI105 and PLSC100 (formerly HORT100). Credit will be granted for only one of the following: HORT271 or PLSC271. Formerly HORT 271. A study of the principles and practices in the propagation of plants.

**PLSC 272 Principles of Arboriculture (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: NRSC171 and PLSC100. Recommended: NRSC200. Not open to students who have completed NRSC272. Formerly NRSC 272. The establishment and maintenance of healthy trees in an urban setting will be studied. Lectures will focus on the environmental constraints to tree development in the city, and the role of physiological processes in regulating tree vigor. Laboratory exercises will cover the unique aspects of urban soils, tree valuation procedures, pruning and training, and supervised climbing.

**PLSC 303 International Crop Production (3)** Prerequisite: BSCI105 or equivalent. Credit will be granted for only one of the following: AGRO303 or PLSC303. Formerly AGRO 303. An introduction to the biological dimension of world hunger. The problems and potentials for increasing world food supply based on current agronomic knowledge. Emphasis on international aspects of food crop production and the interrelationships between agriculture and human populations in the developing world.

**PLSC 305 Introduction to Turf Management (3)** Two hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: AGRO305 or PLSC305. Formerly AGRO 305. Principles of turf culture. Identification and uses of turfgrass species; turfgrass fertilization, cultivation, mowing and establishment; and the identification of turf pests.

**PLSC 320 Principles of Site Engineering (3)** One hour of lecture and five hours of laboratory per week. Prerequisites: LARC140 or PLSC255 (formerly HORT255) and PLSC200 (formerly HORT2 00). For HORT and NRSC majors only. Credit will be granted for only one of the following: HORT320, HORT364, or PLSC320. Formerly HORT 320. The study and application of landscape construction principles as applied to grading, drainage, layout and vehicular and pedestrian circulation.

**PLSC 321 Landscape Structures and Materials (3)** One hour of lecture and five hours of laboratory per week. Prerequisite: PLSC320 (formerly HORT320). Also offered as LARC321. Credit will be granted for only one of the following: HORT321, HORT465, LARC321, or PLSC321. Formerly HORT 321. An examination of the use, properties, and detailing of materials used in landscape construction. The use and design of structures in the landscape.

**PLSC 361 Commercial Principles of Landscape Management (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: BMGT220 or permission of department. Corequisite: PLSC100 or PLSC101. Recommended: LARC160. Credit will be granted for only one of the following: PLSC261 or PLSC361. Formerly PLSC 261. Commercial management practices associated with the landscape build/design and maintenance industry are emphasized. Lectures focus on strategic planning, job cost management, bidding and estimating, marketing, and personnel management. Laboratories and field trips familiarize students with the landscape industry by interfacing with corporations and industry-related term projects.

**PLSC 388 Honors Thesis Research (3-6)** Prerequisite: Admission to AGNR Honors Program. Repeatable to 6 credits if content differs. Formerly HORT 388. Undergraduate honors thesis research conducted under the direction of an AGNR faculty member in partial fulfillment of the requirements of the College of AGNR Honors Program. The thesis will be defended to a faculty committee.

**PLSC 399 Special Problems in Plant Science (1-3)** Prerequisite: Twelve credits in PLSC and permission of instructor. For NRSC majors only. Repeatable to 6 credits. Formerly HORT 399. Research projects in Plant Science including field, greenhouse, laboratory, studio and/or library studies. Research is conducted under the direction of a faculty member.

**PLSC 400 Environmental Plant Physiology (3)** Two hours of lecture and two hours of laboratory per week. Not open to students who have completed NRSC401. Formerly NRSC 401. An introduction to the basic physical and physiological principles necessary for understanding the interactions between plants and their environment. The overall objective is to understand plant responses and adaptations to the environment and the ecological relevance of these responses.

**PLSC 401 Pest Management Strategies for Turfgrass (3)** Prerequisite: PLSC305 (formerly AGRO305). Credit will be granted for only one of the following: AGRO401 or PLSC401. Formerly AGRO 401. Interdisciplinary view of weed, disease, and insect management from an agronomy perspective. Plant responses to pest invasion, diagnosis of pest-related disorders, and principles of weed, disease and insect suppression through cultural, biological and chemical means are discussed.

**PLSC 402 Sports Turf Management (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: PLSC305 (formerly AGRO305) and PLSC401 (formerly AGRO401). Credit will be granted for only one of the following: AGRO402 or PLSC402. Formerly AGRO 402. Sports turf management, including design, construction, soil modification, soil cultural techniques, pesticide use, fertilization, and specialized equipment.

**PLSC 403 Crop Breeding (3)** Pre- or corequisite: BSCI222 or equivalent or permission of department. Credit will be granted for only one of the following: AGRO403 or PLSC403. Formerly AGRO 403. A review of genetic principles and descriptions of contemporary and traditional methods of breeding self-pollinated, cross-pollinated, and vegetatively propagated crop plants.



## 236 Approved Courses

**PLSC 406 Forage Crops (3)** Prerequisite: BSCI105. Recommended: BSCI106. Credit will be granted for only one of the following: AGRO406 and PLSC406. Formerly AGRO 406. World grasslands and their influence on early civilizations; current impact on human food supply; role of forages in soil conservation and a sustainable agriculture. Production and management requirements of major grass and legume species for silage and pasture for livestock feed. Cultivar development, certified seed production and distribution.

**PLSC 407 Cereal and Oil Crops (3)** Prerequisite: BSCI105 and PLSC101 (formerly AGRO101). Credit will be granted for only one of the following: AGRO407 or PLSC407. Formerly AGRO 407. A study of principles of production for corn, small grains, rice, millets, sorghums, soybeans and other oil seed crops. A study of seed production, processing, distribution, and federal and state seed control programs of corn, small grains and soybeans.

**PLSC 410 Commercial Turf Maintenance and Production (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: PLSC305 (formerly AGRO305) or permission of department. Credit will be granted for only one of the following: AGRO410 or PLSC410. Formerly AGRO 410. Agronomic programs and practices used in hydroseeding, commercial lawn care, sod production and seed production. Current environmental, regulatory and business management issues confronting the turfgrass industry.

**PLSC 420 Principles of Plant Pathology (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: CHEM104 or CHEM113 or CHEM271 and CHEM272; and PLSC201 or equivalent. Not open to students who have completed NRSC410. Formerly NRSC 410. An introduction to the causal agents, nature and management of plant diseases with particular attention paid to economically important diseases of horticultural and agronomic crops.

**PLSC 432 Greenhouse Crop Production (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: PLSC201 (formerly NRSC201); and PLSC202 (formerly HORT202). Pre- or corequisite: BSCI442. Credit will be granted for only one of the following: HORT432 or PLSC432. Formerly HORT 432. The commercial production and marketing of ornamental plant crops under greenhouse, plastic houses and out-of-door conditions.

**PLSC 433 Technology of Fruit and Vegetable Production (4)** Three hours of lecture and three hours of laboratory per week. Prerequisite: PLSC201, PLSC202, PLSC271, and NRSC411 or equivalent. Corequisite: BSCI442. Recommended: NRSC200 or equivalent. Junior standing. Credit will be granted for only one of the following: NRSC411 (formerly AGRO411), HORT422, HORT433, or PLSC433. Formerly HORT 433. A critical analysis of research work and application of the principles of plant physiology, chemistry and botany to practical problems in the commercial production of fruit and vegetable crops.

**PLSC 452 Principles of Landscape Establishment and Maintenance (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: PLSC 202 (formerly HORT 202); and PLSC 253 (formerly HORT 253); and PLSC 254 (formerly HORT 254). For NRSC majors only. Credit will be granted for only one of the following: HORT 452 or PLSC 452. Formerly HORT 452. Establishment and maintenance of landscape plants, stressing the physiological determinants of recommended practices.

**PLSC 453 Weed Science (3)** Two hours of lecture and three hours of laboratory per week. Credit will be granted for only one of the following: AGRO453 or PLSC453. Formerly AGRO 453. Weed identification, ecology, and control (cultural, mechanical, biological, and chemical methods).

**PLSC 456 Nursery Crop Production (3)** Two lectures a week and four all-day compulsory Saturday laboratories. Prerequisites: PLSC201, PLSC202, and PLSC271 or equivalent. Credit will be granted for only one of the following: HORT456 or PLSC456. Formerly HORT 456. The methods used for producing ornamental plants and an introduction to the different types of commercial nurseries.

**PLSC 473 Woody Plant Physiology (3)** Prerequisite: BSCI442 or PLSC201 or equivalent. Not open to students who have completed NRSC473. Formerly NRSC 473. Concentration is placed on physiological processes important to woody plant growth and development. Emphasis will be placed on current concepts and theories of how woody plants grow and develop, and the critical assessment of current research in woody plant physiology. Course readings will include textbook assignments and selected papers from the current scientific literature.

**PLSC 474 Physiology of Maturation and Storage of Horticultural Crops (3)** Two hours of lecture and two hours of laboratory per week. Pre- or corequisite: BSCI442. Credit will be granted for only one of the following: HORT474 or PLSC474. Formerly HORT 474. The physiological and biochemical changes occurring during storage of horticultural commodities. Application of scientific principles to handling and storage of fresh produce.

**PLSC 489 Special Topics in Plant Science (1-3)** Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: HORT489 or PLSC489. Formerly HORT 489. A lecture and or laboratory series organized to study a selected phase of Plant Science not covered by existing courses. Credit according to time scheduled and organization of the course.

### PORT – Portuguese

**PORT 104 Intensive Elementary Portuguese (5)** Five hours of lecture per week. Not open to students who have completed PORT101. Intensive elementary course focusing on basic grammar structures and skills in speaking, listening, reading, and writing. Video and computer materials are integrated into the course.

**PORT 204 Intensive Intermediate Portuguese (5)** Five hours of lecture per week. Prerequisite: PORT104. Not open to students who have completed PORT203. Intensive intermediate course focusing on appropriate level grammar structures and skills in speaking, listening, reading, and writing. Video and computer materials are integrated into the course. Satisfies ARHU foreign language requirement.

**PORT 205 Intermediate Conversation (3)** Prerequisite: PORT204 or permission of department. Development of oral skills in Portuguese. Intensive conversation on contemporary issues.

**PORT 223 Portuguese Culture (3)** Political, social, intellectual, and literary forces shaping culture of contemporary Portugal from the formation of the country to the present. In English.

**PORT 224 Brazilian Culture (3)** Pluralistic formation of Brazilian culture, based on European, African and Indian contributions. Lectures, discussions, slides, video, and film presentations. In English.

**PORT 225 The Cultures of Portuguese-Speaking Africa (3)** Cultures of the Portuguese speaking countries of Angola, Cape Verde, Sao Tome e Principe, Guinea-Bissau and Mozambique. Special attention to the development of national cultures in multicultural societies and to the role of women. Conducted in English.

**PORT 228 Selected Topics in Latin American Literature and Society (3-6)** Repeatable to 6 credits if content differs. Also offered as SPAN228. Credit will be granted for only one of the following: PORT228 or SPAN228. Variable cultural studies topics on literature and society in contemporary Latin America.

**PORT 231 Introduction to the Literatures of the Portuguese Language (3)** Prerequisite: PORT205 or permission of department. Combines studies of Brazilian and Portuguese literatures, along with the examination of literary trends, concepts and terms to texts and excerpts of longer works, chosen for their cultural, historical and stylistic interest. Taught in Portuguese.

**PORT 234 Issues in Latin American Studies I (3)** Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN234 and LASC234. Credit will be granted for only one of the following: PORT234 or SPAN234 or LASC234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions.

**PORT 235 Issues in Latin American Studies II (3)** Two hours of lecture and one hour of discussion/recitation per week. Also offered as SPAN235 and LASC235. Credit will be granted for only one of the following: PORT235 or SPAN235 or LASC235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of PORT/LASC/SPAN 234, but completion of 234 is not a prerequisite.

**PORT 311 Advanced Grammar and Composition (3)** Prerequisite: PORT205. Advanced aspects of contemporary grammatical usage. Techniques of writing compositions, descriptions, and commercial and personal letters.

**PORT 320 Survey of Portuguese Literature (3)** Prerequisite: PORT220. Portuguese poetry, fiction and drama from the twelfth century to the present.

**PORT 321 Survey of Brazilian Literature (3)** Prerequisite: PORT221. Selected literary texts from the period of formation through nineteenth century romanticism to twentieth century.

**PORT 322 African Literature of Portuguese Expression (3)** Prerequisite: PORT203. Recommended: PORT205 and PORT225. Representative literary texts (poetry, essay and fiction) from the African nations of Angola, Mozambique, Cape Verde, Guinea-Bissau and Sao Tome e Principe including discussion of acculturated literary discourse, role of literature in the development of national consciousness and use of oral tradition.

**PORT 350 History of the Portuguese Language (3)** Prerequisite: PORT231 or permission of department. Evolution of the Portuguese language from its formation to present days; differences between Continental, African and Brazilian usages.

**PORT 378 Brazilian Cinema (in Translation) (3)** Junior standing. The study of Brazilian film from the late 1950s to the present with a special view to the relationship between cinema and social changes. Taught in English.

**PORT 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**PORT 399 Independent Study in Portuguese (1-3)** Prerequisite: permission of department. Repeatable to 3 credits. Specific readings in literature under the supervision of a faculty member of the department.

**PORT 405 Portuguese for Spanish Speakers (3)** Formerly PORT 121. Intensive basic grammar, reading and auditory comprehension. Native or acquired fluency in Spanish required.

**PORT 408 Special Topics in Portuguese Literature (3)** Prerequisite: PORT221. Repeatable to 6 credits if content differs. Major themes and literary developments from the late 18th century to the present.

**PORT 409 Special Topics in Brazilian Literature (3-6)** Major themes and literary development from the late eighteenth century to the present. Specific topic to be announced each time the course is offered.

**PORT 421 Business Portuguese (3)** Prerequisites: PORT204, PORT205, or permission of department. Business terminology, concepts, and practices in Portuguese-speaking countries, with emphasis on Brazil. Focus on daily spoken and written Brazilian Portuguese. Appropriate cross-cultural topics.

**PORT 422 Cross-Cultural Approaches to Contemporary Luso-Brazilian Societies (3)** Prerequisites: {PORT205 or permission of department} and {PORT223 or PORT224 or PORT225}. Analysis of cross-cultural interactions in international business in contemporary Luso-Brazilian societies.

**PORT 470 Modernism in Brazilian Prose Fiction (3)** Prerequisite: permission of department. Prose of the Modernist movement in Brazil from 1922, including literary, sociological and historical dimensions.

**PORT 476 Africa in Brazil (3)** Junior standing. Not open to students who have completed PORT478A. Cultural expressions resulting from the African presence in Brazil from the sixteenth century to the present, including literature, oral traditions, religion, music, dance, and food.

**PORT 478 Themes and Movements of Luso-Brazilian Literature in Translation (3)** Repeatable to 6 credits if content differs. A study of specific themes and movements either in Portuguese or Brazilian literature, as announced. Designed for students for whom the literatures would be inaccessible in Portuguese.

**PORT 480 Machado de Assis (3)** Prerequisite: permission of department. Fiction of Machado de Assis covering his romantic and realistic periods.

### PSYC – Psychology

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

The Department of Psychology enforces prerequisites. Students who do not meet course prerequisites will be administratively dropped from the course.

**PSYC 100 Introduction to Psychology (3)** A basic introductory course, intended to bring the student into contact with the major problems confronting psychology and the more important attempts at their solution.

**PSYC 108 Honors Seminar (3)**

**PSYC 200 Statistical Methods in Psychology (3)** Prerequisite: PSYC100; and (MATH111 or MATH140 or MATH220) with a C (2.0) or higher. A basic introduction to quantitative methods used in psychological research.

**PSYC 206 Developmental Biopsychology (3)** Prerequisite: PSYC100. Biological basis of behavioral development in relation to genetic, constitutional, anatomical, physiological, and environmental factors. Emphasis upon both phylogenetic and ontogenetic research findings in biological psychology.

**PSYC 221 Social Psychology (3)** Prerequisite: PSYC100. The influence of social factors on the individual and on interpersonal behavior. Includes topics such as conformity, attitude change, person perception, interpersonal attraction, and group behavior.

**PSYC 235 Psychology of Adjustment (3)** Prerequisite: PSYC100. Theory and research on the psychology of personal adjustment in everyday life, with an emphasis on self-concept, emotions, self-control, interpersonal relations, and stress.

**PSYC 301 Biological Basis of Behavior (3)** Prerequisites: BSCI105 and PSYC100. An introduction to the anatomical structures and physiological processes that determine behavior. After a study of the basic functioning of the nervous system, the course will examine the acquisition and processing of sensory information, the neural control of movement, and the biological bases of complex behaviors such as sleep, learning, memory, sex, language, and addiction.

**PSYC 309 Special Topics in Psychology (1-3)** Prerequisite: PSYC100. Sophomore standing. For PSYC majors only. Repeatable to 6 credits if content differs. Topics of current interest which represent extensions of or additions to topics covered in more general topical courses.

**PSYC 310 Perception (3)** Prerequisite: PSYC100; and {BSCI105, BSCI106, CHEM103 or PHYS121}. Not open to students who have completed PSYC410. A survey of phenomena and theories of perception including psychological, anatomical, physiological, and environmental factors important in determining how we perceive the world. Historical background will be examined as well as contemporary research.

**PSYC 318 Community Interventions: Theory and Research (3)** Prerequisite: PSYC100 and permission of department Restricted to PSYC and WMST majors. Formerly PSYC 309A. Survey and critical examination of a problem in the community and related interventions. Analysis of theory and research relevant to the problem. Historical and current trends discussed. A student who has completed PSYC 309 must have permission of the department in order to register PSYC 318.

**PSYC 319 Community Interventions: Service Learning (3)** Two hours of lecture and three hours of volunteer service in the community. Prerequisite: PSYC100, PSYC318 and permission of department Restricted to PSYC and WMST majors. Formerly PSYC 309B. Apply knowledge gained in PSYC 318 to provide interventions to individuals dealing with a community problem. Critical analysis of interventions and related research. Ethical and cultural considerations in the provision of services are addressed.

**PSYC 332 Psychology of Human Sexuality (3)** Prerequisite: PSYC100. A survey of historical and contemporary psychological views on a wide variety of sexual behaviors; theory and research bearing on the relationship between life span psychological development, psychological functioning, interpersonal processes and sexual behaviors; political and social issues involved in current sexual norms and practices.

**PSYC 334 Psychology of Interpersonal Relationships (3)** Prerequisite: PSYC100. Research, theory and their practical applications pertaining to the development, maintenance and dissolution of human relationships. Processes critical to successful relating (e.g., communication, bargaining, conflict resolution), and issues associated with troubled dyadic relations with equal partners (e.g., jealousy, spouse abuse, divorce).

**PSYC 336 Psychology of Women (3)** Prerequisite: PSYC100. Also offered as WMST336. Credit will be granted for only one of the following: PSYC336 or WMST336. A survey of the biology, life span development, socialization, personality, mental health, and special issues of women.

**PSYC 337 Introduction to Community Psychology (3)** Prerequisite: PSYC100. Survey and critical examination of the effects of social process and social structure in community life on individual mental health. Includes theoretical models in community psychology.

**PSYC 341 Introduction to Memory and Cognition (3)** Prerequisite: PSYC100. An introduction to the basic models, methods of research, and findings in memory, problem-solving, and language and their applications.

**PSYC 353 Abnormal Psychology (3)** Prerequisite: PSYC100. For PSYC majors only. The nature, diagnosis, etiology, and treatment of mental disorders.

**PSYC 354 Cross-Cultural Psychology (3)** Prerequisite: PSYC100. Cultural components in theory and research in personality, social, and community psychology. Interplay of individual, ethnic, and cultural factors in psychosocial growth and well-being, cross-cultural and cross-ethnic communication, and counseling and psychotherapeutic interactions.

**PSYC 355 Child Psychology (3)** Prerequisite: PSYC100. Not open to students who have completed PSYC333. Survey of research and theory of psychological development from conception through childhood, stressing physiological, conceptual and behavioral changes, and the social and biological context in which individuals develop.

**PSYC 356 Psychology of Adolescence (3)** Prerequisite: PSYC355 or permission of department. A description of adolescent development based on research and theory interrelating psychological, intellectual, and social changes during the teen years and the systems dealing with those changes.

**PSYC 357 Psychology of Adulthood and Aging (3)** Prerequisite: PSYC100. Theory, research, and implications of developmental stability and change in physiological, intellectual, and interpersonal functioning in the social context from early adulthood through the aging years.

**PSYC 361 Survey of Industrial and Organizational Psychology (3)** Prerequisite: PSYC100. A general survey of the field of industrial organizational psychology including such topics as organizational entry (recruitment, selection, training, socialization), organizational psychology (motivation, leadership, job attitudes), and productivity in the work place (performance appraisal, absenteeism, turnover). The role that the larger environment plays in influencing work behaviors and work attitudes.

**PSYC 386 Experiential Learning (1-6)** Prerequisite: permission of department. Junior standing.

**PSYC 401 Biological Bases of Behavior Laboratory (4)** Two hours of lecture and four hours of laboratory per week. Prerequisites: BIOL105; and PSYC200; and PSYC301 or equivalent; and permission of department. Restricted to PSYC majors who have completed 85 credits. A laboratory course to introduce students to some of the basic physiological and anatomical techniques of contemporary neuroscience. Exercises look at specific neurons or groups of neurons and how they control such simple behaviors as swimming, prey capture, and species recognition. The lab exercises use living invertebrates and cold-blooded vertebrates.

**PSYC 402 Neural Systems and Behavior (3)** Prerequisite: PSYC206 or PSYC301. Priority is given to PSYC majors. Credit will be granted for only one of the following: PSYC402. Research on the physiological basis of behavior, including considerations of sensory phenomenon, motor coordination, emotion, drives, and the neurological basis of memory.

**PSYC 403 Animal Behavior (3)** Prerequisite: PSYC206 or PSYC301. Social interactions, learning, sensory processes, motivation, and experimental methods, with a major emphasis on mammals.

**PSYC 404 Introduction to Behavioral Pharmacology (3)** Prerequisites: PSYC200 and {PSYC206 or PSYC301}. Theoretical viewpoints on the interaction of drugs and behavior. Basic principles of pharmacology, the effects of drugs on various behaviors, experimental analysis of drug dependence and abuse, and neuropharmacology and behavior.

**PSYC 409 Topics in Neurosciences Seminar (1)** Restricted to students with a minor in Neurosciences. Prerequisite: permission of department. Junior standing. Repeatable to 4 credits if content differs. Current research in neurosciences will be presented, read, and discussed. Emphasis will change each term.

**PSYC 410 Experimental Psychology: Sensory Processes I (4)** Three hours of lecture and two hours of laboratory per week. Prerequisites: PSYC200; and completion of the English, math and science supporting course sequence. A student who has completed PSYC310 must have permission of department in order to register for PSYC410. Restricted to PSYC majors who have completed 85 credits and permission of instructor. A systematic survey of the content, models, and methodology of sensory and perceptual research.

**PSYC 415 History of Psychology (3)** Prerequisite: twelve credits in psychology including PSYC 200 or permission of department. Origins of psychology in philosophy and biology, and the development of psychology as a science in the nineteenth and twentieth centuries. Consideration of current theoretical perspectives and experiments in relation to the enduring problems of psychology, and of the role of culture, science, and technology in the development of psychological ideas.

**PSYC 420 Experimental Psychology: Social Processes I (4)** Two hours of lecture and four hours of laboratory per week. Prerequisite: PSYC200; PSYC221; the completion of the departmentally required math and science supporting course sequence; and 85 credits. A laboratory course to provide a basic understanding of experimental method in social psychology and experience in conducting research on social processes.

**PSYC 423 Advanced Social Psychology (3)** Prerequisite: PSYC420 or permission of department. A systematic review of research and points of view in regard to major problems in the field of social psychology.

**PSYC 424 Communication and Persuasion (3)** Prerequisites: PSYC200 and PSYC221. Effect of social communication upon behavior and attitudes. Theory and research concerning attitude change and social influence.

**PSYC 432 Introduction to Counseling Psychology (3)** Prerequisite: nine hours in psychology including PSYC200. Analysis of research and intervention strategies developed and used by counseling psychologists. Historical and current trends in content and methodology.

**PSYC 433 Basic Helping Skills: Research and Practice (4)** Two hours of lecture and two hours of laboratory per week. Prerequisite: PSYC200; and {PSYC235 or PSYC334 or PSYC353 or PSYC432 or PSYC434 or PSYC435 or PSYC436}; and 85 credits. Theories and research regarding effective helping skills. Students will practice helping skills with each other and will conduct research projects evaluating their helping skills. Students should be willing to talk about personal issues in class.

**PSYC 434 Severe Mental Disorders: Etiology and Treatment (3)** Prerequisites: PSYC200, and PSYC301, and PSYC353, or permission of department. For PSYC majors only. Examines multiple perspectives on severe mental illnesses such as schizophrenia and the major affective disorders. Integrates the biological findings with the human experience of these illnesses, their cultural and socio-political aspects, and their psychological, pharmacological, and social service treatments.

**PSYC 435 Personality Theories (3)** Prerequisite: PSYC100; and PSYC200 or equivalent. Major theories of personality and research methods and findings relevant to those theories.

**PSYC 436 Introduction to Clinical Psychology (3)** Prerequisite: PSYC200 or equivalent. Critical analysis of clinical psychology, with particular emphasis on current developments and trends.

**PSYC 440 Experimental Psychology: Cognitive Processes (4)** Three hours of lecture and two hours of laboratory per week. Prerequisites: PSYC100; and PSYC200; and completion of supporting course sequence; and 85 credits. Recommended: PSYC341. A survey of the content, models, and methods in cognitive psychology with an emphasis on auditory and visual pattern recognition, information processing, attention, memory, learning, problem solving, and language.

**PSYC 442 Psychology of Language (3)** Prerequisite: PSYC200; and PSYC341 or PSYC440, or permission of department. Introductory survey of topics in psycholinguistic research, theory and methodology. Major emphasis on the contribution of linguistic theory to the psychological study of language behavior and cognition. Linguistic theory, biological bases of language, and speech, grammars, phonetics and phonological performance, speech perception and production, psychological studies of syntax and semantics, language and cognitive development, language comprehension and thought.

**PSYC 443 Thinking and Problem Solving (3)** Prerequisites: PSYC200; and {PSYC341 or PSYC440} or permission of department. Historical development, current theory and data, and research methods in problem solving. Formal problem solving theory and computer models of thinking and human problem-solving behavior. The uses of strategies to improve students' own thinking processes and problem-solving behavior.

**PSYC 450 Field Research in Organizational Psychology (4)** Two hours of lecture and two hours of laboratory per week. Prerequisites: PSYC100, PSYC200 and completion of the departmentally required math and science supporting course sequence. Recommended: PSYC361. Restricted to PSYC majors who have completed 85 credits. Methods of field research applicable to organizational settings are examined, including field experiments and quasi-experiments, observation, interviewing, surveys, content analysis, and various forms of qualitative inquiry.

**PSYC 451 Principles of Psychological Testing (3)** Prerequisite: PSYC200 or equivalent. Basic concepts and theories of psychological assessment including test development. Also discussed are social, legal, cultural, and ethical considerations in testing and commonly used tests.

**PSYC 452 Psychology of Individual Differences (3)** Prerequisite: PSYC200. Problems, theories, and research related to psychological differences among individuals and groups.

**PSYC 455 Life-Span Cognitive Development (3)** Prerequisites: PSYC200 and {PSYC355 or PSYC341 or PSYC440}. Theory and research in cognition from a life-span developmental perspective including memory, reasoning, attention, spatial cognition, and conceptual organization, and discussions of implications of current research for a variety of educational interventions.

**PSYC 456 Research Methods in Developmental Psychology (3)** Prerequisites: PSYC200 and {PSYC355 or PSYC356 or PSYC357}. A presentation of major research designs used in developmental psychology and of the methodology used in developmental research, such as observational research, program evaluation, and laboratory experimentation.

## 238 Approved Courses

**PSYC 457 Cultural Context of Psychological Development (3)**  
Prerequisite: {PSYC355, or PSYC356, or PSYC357,} or permission of department. An examination of whether important differences or similarities exist among and within cultures in the way people develop psychological competencies in the period from birth through adolescence.

**PSYC 458 Applied Developmental Psychology (3)**  
Prerequisite: PSYC200 and {PSYC355, or PSYC356, or PSYC357}. Repeatable to 6 credits if content differs. An examination of a topic in developmental psychology which has been examined in the laboratory and is central to developmental theories. Extension of these analyses to practical and social issues in the daily life of the developing individual. Topics will vary from semester to semester.

**PSYC 460 Psychological Foundations of Personnel Selection and Training (3)**  
Prerequisite: PSYC200 or equivalent. An examination of issues and processes involved in the design and evaluation of personnel selection and training programs in a variety of organizational settings: job, person and organizational analysis; organizational choice; development of predictors; evaluation of instructional and training systems; criteria for performance evaluation, promotion and training.

**PSYC 463 Psychology of Motivation and Attitudes in Organizational Settings (3)**  
Prerequisites: PSYC200 and PSYC361. Theories, research and practice regarding the assessment, understanding, and prediction of motivation at work. Theories, assessment and consequences of various work-related attitudes. An integration of theory, research, and practice.

**PSYC 464 Psychology of Leaders in Work Organizations (3)**  
Prerequisite: PSYC361 or equivalent. The psychological assumptions and implications of various theories of management and leadership. Selections and training; development of careers; influence processes; change of managerial behavior; and the impact of the larger environment, nature of product or service, and organization structure on managerial behavior.

**PSYC 465 Psychology of Organizational Processes (3)**  
Prerequisites: PSYC200 and PSYC361 or equivalent. Theories of interpersonal, intra- and inter-group relations, with emphasis on issues of conflict, competition, cooperation and the role of power in organizations. Organizational diagnosis and intervention.

**PSYC 466 Environmental and Ecological Psychology (3)**  
Prerequisite: PSYC200. An examination of measurement, description, and impact of the physical and social environments that affect various aspects of behavior in school, at work, and during leisure.

**PSYC 468 Field Experience and Special Assignments in Honors (1-3)**  
Prerequisite: permission of department as well as supervisor and honors faculty. Repeatable to 6 credits. An individual experience arranged by the honors student and his or her supervisor. A proposal submitted to the honors faculty in the semester preceding registration for the course should state the activities anticipated and the method of evaluation.

**PSYC 469 Honors Thesis Proposal Preparation (1-3)**  
Prerequisite: Honors thesis supervisor's approval. Repeatable to 3 credits. Development of honors thesis proposal by preliminary research and literature review. Presentation of formal proposal to the thesis committee.

**PSYC 478 Independent Study in Psychology (1-3)**  
Prerequisite: permission of both department and instructor in the form of a written agreement signed by the student and the faculty mentor. The student must have completed 9 hours in psychology with at least a 3.0 G.P.A. in psychology and a 2.8 overall G.P.A. Students may not accumulate more than a total of 9 credits in PSYC 478 and PSYC 479 without permission of the Chair of the Department of Psychology or the Psychology Undergraduate Committee. Integrated reading under direction leading to the preparation of an adequately documented report on a special topic.

**PSYC 479 Special Research Problems in Psychology (1-3)**  
Prerequisite: permission of both department and instructor in the form of a written agreement signed by the student and the faculty mentor. The student must have completed 9 hours in psychology with at least a 3.0 G.P.A. in psychology and a 2.8 overall G.P.A. Repeatable to a maximum of 9 credits unless there is a waiver from the Psychology Undergraduate Committee. Research and data collection under individual faculty supervision, leading to a written research report.

**PSYC 488 Advanced Psychology I (Honors) (3)**  
Prerequisite: PSYC200 and permission of department. Seminar covering topics in sensation, perception, learning, and motivation.

**PSYC 489 Senior Seminar (3)**  
Prerequisite: PSYC100. Treatment of a specialized topic in psychology.

**PSYC 498 Advanced Psychology II (Honors) (3)**  
Prerequisite: PSYC488H or permission of department. Seminar covering topics in measurement, social processes, developmental processes and other subject matter of current interest.

**PSYC 499 Honors Thesis Research (3)**  
Prerequisite: PSYC469 and permission of thesis advisor.

### PUAF – Public Affairs

**PUAF 338 Academic Seminar for Interns: Federal and International (3)**  
Prerequisite: permission of department. Corequisite: PUAF339. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: BSOS338 or PUAF338. Formerly BSOS 338. The academic seminar for student interns in BSOS399. Students read, discuss, analyze, and write about topics in political and public policy leadership, and leadership studies.

**PUAF 339 Internship in Political Institutions: Federal and International (3-6)**  
8 hours per week in internship site for 15 weeks for 3 credits or 16 hours per week in internship site for 15 weeks for 6 credits. Prerequisite: permission of department. Corequisite: PUAF338. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS339 or PUAF339. Formerly BSOS 339. Offers students supervised internship placements in federal and international political or public policy organizations.

**PUAF 348 Academic Seminar for Interns: State and Local (3)**  
Prerequisite: permission of department. Corequisite: PUAF349. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: BSOS348 or PUAF348. Formerly BSOS 348. The academic seminar for student interns in PUAF349. Students read, discuss, analyze, and write about topics in political and public policy leadership, and leadership studies.

**PUAF 349 Internship in Political Institutions: State and Local (3-6)**  
8 hours per week in internship site for 15 weeks for 3 credits or 16 hours per week in internship site for 15 weeks for 6 credits. Prerequisite: permission of department. Corequisite: PUAF348. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS349 or PUAF349. Formerly BSOS 349. Offers students supervised internship placements in state and local political or public policy organizations.

**PUAF 359 Contemporary Issues in Political Leadership and Participation (3)**  
Prerequisite: permission of department. Repeatable to 9 credits if content differs. Credit will be granted for only one of the following: BSOS359 or PUAF359. Formerly BSOS 359. Special topics in political leadership and participation.

**PUAF 368 Internship in Community Service Organizations (3-6)**  
Prerequisite: permission of department. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS366 or PUAF368. Formerly BSOS 366. Offers students supervised placements in non-profit community organizations.

**PUAF 386 Experiential Learning (3-6)**  
Prerequisite: permission of department. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS386 or PUAF386. Formerly BSOS 386.

**PUAF 388 Special Topics in Public Policy (1-3)**  
Prerequisite: permission of department. Sophomore standing. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: BSOS388 or PUAF388. Formerly BSOS 388. Advanced special topics focusing on an interdisciplinary topic related to Public Policy.

**PUAF 396 Fellowship Program in Political Leadership (2-6)**  
Prerequisite: permission of department and acceptance of full-time fellowship program. Corequisite: BSOS346, BSOS356 or BSOS366. Credit will be granted for only one of the following: BSOS396 or PUAF396. Formerly BSOS 396. Individual instruction course.

**PUAF 398 Fellowship Program in Political Leadership (3-6)**  
Prerequisite: permission of department and acceptance of full-time fellowship program. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS396 or PUAF398. Formerly BSOS 396.

**PUAF 399 Directed Study in Public Policy (1-6)**  
Prerequisite: permission of department. Repeatable to 12 credits if content differs. Credit will be granted for only one of the following: BSOS399 or PUAF399. Formerly BSOS 399. Guidance for the advanced student capable on interdisciplinary study on special projects under the supervision of faculty.

### RUSS – Russian

**RUSS 101 Intensive Elementary Russian I (6)**  
Two hours of lecture and six hours of laboratory per week. Not open to native speakers of Russian. Credit will be granted for only one of the following: RUSS101; or RUSS111 and RUSS112. This intensive first-year course is intended to develop the four skills: reading, writing, listening and speaking with an emphasis on communicative competence.

**RUSS 102 Intensive Elementary Russian II (6)**  
Two hours of lecture and six hours of laboratory per week. Prerequisite: RUSS101 or RUSS112 or equivalent. Not open to native speakers of Russian. Credit will be granted for only one of the following: RUSS102; or RUSS113 and RUSS114. A continuation of RUSS 101 which will further develop the four skills: reading, writing, listening and speaking with an emphasis on communicative competence.

**RUSS 111 Elementary Russian I (Non-Intensive) (3)**  
Credit will be granted for only one of the following: RUSS101; or RUSS111 and RUSS112. Begins the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS 111 and RUSS 112 are equivalent to RUSS 101: Intensive Elementary Russian I.

**RUSS 112 Elementary Russian II (Non-intensive) (3)**  
Prerequisite: RUSS111 or equivalent. Credit will be granted for only one of the following: RUSS101; or RUSS111 and RUSS112. A continuation of Russian 111 which is designed to further the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS 111 and RUSS 112 are equivalent to RUSS 101: Intensive Elementary Russian I.

**RUSS 113 Elementary Russian III (Non-Intensive) (3)**  
Prerequisite: RUSS112 or equivalent. Credit will be granted for only one of the following: RUSS102; or RUSS113 and RUSS114. A continuation of RUSS 112 which is designed to further the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS 113 and RUSS 114 are equivalent to RUSS 102: Intensive Elementary Russian II.

**RUSS 114 Elementary Russian IV (Non-Intensive) (3)**  
Prerequisite: RUSS113 or equivalent. Credit will be granted for only one of the following: RUSS102; or RUSS113 and RUSS114. A continuation of RUSS 113 which is designed to further the development of the basic skills required for communicative competence in Russian: speaking, listening, writing and reading. RUSS 113 and RUSS 114 are equivalent to RUSS 102: Intensive Elementary Russian II.

**RUSS 201 Intermediate Russian I (5)**  
Two hours of lecture and four hours of laboratory per week. Prerequisite: RUSS102 or RUSS114 or equivalent. Not open to native speakers of Russian. Continued activation and expansion of skills and knowledge acquired in an elementary Russian course with the goal of communicative competence.

**RUSS 202 Intermediate Russian II (5)**  
Two hours of lecture and four hours of laboratory per week. Prerequisite: RUSS201. Not open to native speakers of Russian. Continued activation and expansion of skills and knowledge acquired in RUSS 201 with the goal of communicative competence.

**RUSS 210 Structural Description of Russian (3)**  
Pre- or corequisite: RUSS201 or equivalent. An introductory linguistic course designed to order and supplement students' knowledge of the sound system and the inflectional system of the verb. A practical component on reading skills also focuses on the verb and methods of developing vocabulary.

**RUSS 211 Applied Russian Phonetics (3)**  
Prerequisite: RUSS102. Not open to native speakers of Russian. Pronunciation; the sounds and intonational patterns of Russian in contrast with those of English.

**RUSS 221 Masterworks of Russian Literature I (3)**  
Introduction to the classics of Russian literature in translation, beginning with Pushkin in the early 19th century and concluding with works of Dostoevsky and Tolstoy in the later part of that century.

**RUSS 222 Masterworks of Russian Literature II (3)**  
Introduction to the classics of Russian literature in translation, beginning with the end of the nineteenth century and concluding with contemporary works.

**RUSS 281 Russian Language and Pre-Revolutionary Culture (3)**  
Not open to native speakers of Russian. Introduction to the Russian language and a study of Russian nationalism; artistic and social concepts in the development of Russian art, dance, geography, history and literature from the 18th to the 20th centuries. Lectures in English, with third hour devoted to basic language instruction (alphabet, vocabulary, pronunciation and minimal conversational skills).

**RUSS 282 Contemporary Russian Culture (3)**  
Russia of the post-Communist era. An exploration of the cultural implications of the disintegration of the former Soviet Union. Also included is a brief introduction to the Russian language: alphabet, elementary reading and survival skills for the first time traveler. Course format includes a combination of lectures, group discussions, videos, and optional field trips.

**RUSS 298 Special Topics in Russian Language and Literature (3)**  
Repeatable to 6 credits if content differs.

**RUSS 301 Advanced Russian I (3)** Prerequisite: RUSS202 or equivalent. Advanced training in written Russian communicative structures.

**RUSS 302 Advanced Russian II (3)** Prerequisite: RUSS301. Advanced training in written Russian communicative structures.

**RUSS 303 Russian Conversation: Functional Skills (3)** Prerequisite: RUSS202 or equivalent. Intended for students who do not anticipate having the opportunity to study in the Soviet Union. Skills for daily life (both function and etiquette) and argumentation (rhetoric).

**RUSS 307 Commercial Russian I (3)** Prerequisite: RUSS202 or equivalent. Designed to give introductory knowledge of correct commercial Russian including letters, business forms, contracts, and agreements.

**RUSS 321 Survey of Russian Literature I (3)** Prerequisite: RUSS202 or equivalent. The first half of a survey of Russian literature.

**RUSS 322 Survey of Russian Literature II (3)** Prerequisite: RUSS321 or equivalent. The second half of a survey of Russian literature.

**RUSS 327 Old Russian Literature in Translation (3)** Recommended: RUSS221. Old Russian literature of the 11th-17th centuries for the general student. Selected texts will be read in translation, with analysis in terms of genre and historical setting.

**RUSS 328 19th Century Russian Literature in Translation (3)** Repeatable to 6 credits if content differs. Development of Russian literary thought in the Russian novel and short prose of the 19th century. Influence of western literatures and philosophies.

**RUSS 329 Soviet Literature in Translation (3)** Repeatable to 6 credits if content differs. Russian literature since 1917, both as a continuation of pre-revolutionary traditions and as a reflection of Soviet ideology.

**RUSS 381 Russian Civilization (in Russian) I (3)** Prerequisite: RUSS202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet and the theater to the beginning of the 19th century pointing out the interrelationship of all with literary movements. Taught in Russian.

**RUSS 382 Russian Civilization (in Russian) II (3)** Prerequisite: RUSS202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet, and the theater, from the beginning of the 19th century to the present pointing out the interrelationships of all with literary movements. Taught in Russian.

**RUSS 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**RUSS 388 Language House Spring Colloquium (1)** Prerequisite: Residence in Language House. Repeatable to 8 credits. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

**RUSS 398 Selected Topics in Russian Language and Literature (3)** Repeatable to 6 credits if content differs.

**RUSS 401 Advanced Russian Composition (3)** Prerequisite: RUSS302.

**RUSS 402 Practicum in Written Russian (3)** Prerequisite: RUSS401 or equivalent. Designed to improve comprehension of functional varieties of written Russian and develop ability to present in written form concise syntheses of source texts.

**RUSS 403 Russian Conversation: Advanced Skills (3)** Prerequisite: RUSS303 or equivalent. Advanced spoken production of high-level, abstract language.

**RUSS 404 Practicum in Spoken Russian (3)** Prerequisite: RUSS 403 or equivalent. To improve comprehension of rapidly spoken Russian of various functional styles and to develop ability to synthesize orally the content of spoken material.

**RUSS 405 Russian-English Translation I (3)** Pre- or corequisite: RUSS302 or equivalent. Introduction to the principles of translation of a particular genre,—typically diplomatic, business, or literary.

**RUSS 406 Russian-English Translation II (3)** Prerequisite: RUSS405. Continuation of RUSS 405.

**RUSS 407 Commercial Russian II (3)** Prerequisite: RUSS307. Continuation of RUSS 307 focusing in the more difficult and complex Russian business documents and Russian business ministries.

**RUSS 409 Selected Topics in Russian Language Study (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian language study.

**RUSS 410 Applied Russian Linguistics (3)** The nature of applied linguistics and its contributions to the effective teaching of foreign languages. Comparative study of English and Russian, with emphasis upon points of divergence. Analysis, evaluation and construction of related drills.

**RUSS 411 Linguistic Analysis of Russian I (3)** Prerequisites: RUSS210; and LING200. Pre- or corequisite: RUSS301. Elucidation of theoretical concepts of modern linguistics through the analysis of problematic concepts in the Russian linguistic system. Phonology and the syntax of the simple sentence.

**RUSS 412 Linguistic Analysis of Russian II (3)** Prerequisite: RUSS411. Continuation of RUSS 411. The syntax of the complete sentence, semantics.

**RUSS 431 Russian Literature of the 19th Century I (3)**

**RUSS 432 Russian Literature of the 19th Century II (3)**

**RUSS 433 Russian Literature of the 20th Century (3)**

**RUSS 434 Soviet Russian Literature (3)**

**RUSS 439 Selected Topics in Russian Literature (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian literature.

**RUSS 473 Recent History of the Russian Language (3)** Prerequisite: RUSS210 or equivalent. Linguistic interpretation of Russian texts from the late 18th century to the present.

**RUSS 499 Independent Study in Russian (1-3)** Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Independent study under faculty supervision.

## SLAV – Slavic

**SLAV 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**SLAV 469 Selected Topics in Slavic Studies (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic studies.

**SLAV 475 Old Church Slavonic (3)** Introduction to the language of the oldest recorded Slavic documents. Historical presentation of phonology, morphology, and syntax; reading of texts.

**SLAV 479 Selected Topics in Slavic Linguistics (3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic linguistics.

**SLAV 499 Directed Study (1-3)** Prerequisite: permission of department. For advanced students. Repeatable to 6 credits if content differs.

## SLLC – School of Languages, Literatures and Cultures

**SLLC 283 Introduction to Cinema Studies (3)** Three hours of lecture and two hours of laboratory (viewing films) per week. Introduction to the critical study of film, focusing on cinema from myriad cultures in Europe, the Americas, Asia, and Africa, with special attention to form analysis and the way that form affects and creates cultural meaning in such contexts as gender, race, colonialism, political ideology, and technology.

**SLLC 300 World Film History (3)** A historical and critical survey of film as an art form, an institution and a medium of communication through a selection of major aesthetic movements and masterpieces of world cinema will be presented.

**SLLC 305 Language, Identity and Diversity in the U.S. (3)** Credit will be granted for only one of the following: GERM389M or SLLC305. Formerly GERM 389M. Introduces issues of linguistic diversity in the framework of the U.S. as a multilingual society. Special emphasis is placed on attitudes toward language diversity, specifically, how regional, social, generational, ethnic, racial and gender differences in language use contribute to notions of identity.

**SLLC 400 Articulatory Phonetics for Second Language Acquisition and Application (3)** Junior standing. Also offered as SLLC600. Credit will be granted for only one of the following: SLLC400 or SLLC600. The mechanical capabilities of the human vocal apparatus for producing speech sounds, and their terminology and transcription in the International Phonetic Alphabet. Emphasis is on the practical needs of the teacher and student of foreign language, rather than the theoretical linguist or the hearing-and-speech pathologist. The phonetics of major languages are also introduced, with attention to the pedagogy of their phonetics.

**SLLC 471 The Cultural Environment of Global Business (3)** Sophomore standing. Credit will be granted for only one of the following: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472 or SLLC473. Formerly ARHU 439B. The goal of this course is to provide students with an understanding of cultural aspects pertaining to global business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the business world. Students will gain an understanding of how the business cultures in the rest of the world diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

**SLLC 472 International Business Cultures in Engineering and Technology (3)** Sophomore standing. Also offered as ENES472. Credit will be granted for only one of the following: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472 or SLLC473. Formerly ARHU 439T. The goal of this course is to provide students with an understanding of cultural aspects pertaining to global business and engineering, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the business world. Students will gain an understanding of how the business cultures in the rest of the world diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

**SLLC 473 European Business Cultures (3)** Sophomore standing. Credit will be granted for only one of the following: ARHU439B, ARHU439E, ARHU439T, ENES472, SLLC471, SLLC472 or SLLC473. Formerly ARHU 439E. The goal of this course is to provide students with an understanding of cultural aspects pertaining to European business, and thereby increasing their awareness of the cultural factors that motivate decisions and behavior in the European business world. Students will gain an understanding of how the European business cultures diverge from the American, and develop the cultural understanding, attitudes, and communication skills needed to function appropriately within an increasingly global and multicultural working environment.

## SOCY – Sociology

**SOCY 100 Introduction to Sociology (3)** The fundamental concepts and principles of sociology. Includes consideration of culture, patterns of social interaction, norms, values, social institutions, stratification, and social change.

**SOCY 105 Introduction to Contemporary Social Problems (3)** An examination of contemporary social problems through sociological perspectives; ways in which social problems are part of the organization of society; a detailed study of selected social problems including social conflict and social inequality.

**SOCY 201 Introductory Statistics for Sociology (4)** Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY100 and MATH111 or equivalent. Not open to students who have completed BMGT231, ENEE324, or STAT400. Credit will be granted for only one of the following: AREC484, BIOM301, BMGT230, CNEC400, ECON321, EDMS451, GEOG305, GVPT422, PSYC 200, SOCY 201, URSP 350, or TEXT 400. Elementary descriptive and inferential statistics. Construction and percentaging of bivariate contingency tables; frequency distributions and graphic presentations; measures of central tendency and dispersion; parametric and nonparametric measures of association and correlation; regression; probability; hypothesis testing; the normal, binomial and chi-square distributions; point and interval estimates.

**SOCY 202 Introduction to Research Methods in Sociology (4)** Prerequisite: SOCY201. The underlying logic, major strategies, specific techniques and skills of sociological research. Research design, measurement, data collection, sampling, field research experiments, surveys, index and scale construction, data analysis, interpretation and report writing.

**SOCY 203 Sociological Theory (3)** Prerequisite: SOCY100. Development of the science of sociology; historical backgrounds; recent theories of society. Required of all sociology majors.

**SOCY 227 Introduction to the Study of Deviance (3)** Credit will be granted for only one of the following: SOCY 227 or SOCY 327. Formerly SOCY 327. An introduction to the sociological study of deviant behavior, covering such topics as mental illness, sexual deviance, and the use of drugs.

**SOCY 230 Sociological Social Psychology (3)** Theoretical perspectives and their applications. Socialization through the life course, the self-concept, attitudes, emotion, attribution, interpersonal relations, group processes, deviance, and social change.

**SOCY 241 Inequality in American Society (3)** The dynamics of inequality: its social production, politics, future, and ideological bases. Utopian communities, efforts to eliminate inequality.

## 240 Approved Courses

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**SOCY 305 Scarcity and Modern Society (3)** Prerequisite: three credits of sociology. Resource depletion and the deterioration of the environment. Relationship to lifestyles, individual consumer choices, cultural values, and institutional failures. Projection of the future course of American society on the basis of the analysis of scarcity, theories of social change, current trends, social movements, government actions, and the futurist literature.

**SOCY 325 The Sociology of Gender (3)** Prerequisite: three credits of sociology. Also offered as WMST325. Credit will be granted for only one of the following: SOCY325 or WMST325. Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.

**SOCY 333 Technology and Society (3)** Prerequisite: three credits of sociology. Impact of technology on agriculture, the industrial revolution, politics, economics, and health, education and welfare, as these affect changes in social organizations. The development of small cities, the better utilization of energy, the use of wealth and abundance and its relation to the division of labor, and the role of technology in shaping of new forms of political and economic organizations.

**SOCY 380 Honors Independent Reading in Sociology (3)** Prerequisite: permission of department. Formerly SOCY 378. This course permits sociology honor students to undertake a program or reading on a particular problem in sociology or a subfield therein. The reading will be done under the supervision of a member of the sociology faculty. Required of sociology honor students.

**SOCY 381 Honors Independent Research in Sociology (3)** Prerequisite: SOCY380. Formerly SOCY 388. This course permits sociology students to define a particular problem in sociology or a subfield therein and to develop a research plan for use as a thesis topic. The work will be done under the supervision of a member of the sociology faculty.

**SOCY 383 Honors Thesis Research (3)** Prerequisite: SOCY381. Formerly SOCY 389. Student research under the direction of a member of the sociology faculty, culminating in the presentation and defense of a thesis reporting the research.

**SOCY 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**SOCY 398 Special Topics in Sociology (1-3)** Prerequisite: three credits of sociology. Repeatable to 6 credits if content differs. Topics of special interest to both sociology majors and non-majors.

**SOCY 399 Independent Study in Sociology (1-6)** Prerequisite: Twelve credits of sociology and permission of department. Repeatable to 6 credits if content differs. Integrated reading or research under the direction and supervision of a faculty member. A maximum of 6 credits may be earned by a student for the same field experience in SOCY 386 and SOCY 399 combined.

**SOCY 401 Intermediate Statistics for Sociologists (4)** Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY 201 or equivalent or permission of department. Not open to students who have completed ENEE 324, BMGT 231, or STAT 400. Issues in the use of significance tests in sociology, one and two-way analysis of variance, elements of multiple regression and correlation, techniques for the analysis of nominal and ordinal data.

**SOCY 402 Intermediate Procedures For Data Collection (3)** Prerequisite: SOCY202 or equivalent; or permission of department. An intermediate survey of the major research methods used by sociologists, including survey research, experimentation, observation, archival research, and in-depth interviewing. The selection of an appropriate research method, with analysis of the strengths and weaknesses of various methods, practical issues, data collection and preparation, and analytical techniques.

**SOCY 403 Intermediate Sociological Theory (3)** Prerequisite: SOCY203 or permission of department. Major theoretical approaches, including functionalism conflict, symbolic interactionism, and their implicit methods of logic illustrated by case studies. Original works of major theorists in historical perspective.

**SOCY 410 Social Demography (3)** Prerequisite: six credits of sociology or permission of department. Types of demographic analysis; demographic data; population characteristics; migration; mortality; fertility; population theories; world population growth; population policy.

**SOCY 411 Demographic Techniques (3)** Prerequisite: SOCY201 or equivalent and SOCY 410; or permission of department. Basic techniques for analyzing population structure and demographic processes, including fertility, mortality and migration.

**SOCY 412 Family Demography (3)** Prerequisite: six credits of sociology course work. Formerly SOCY 312. Family and population dynamics. Fertility issues, such as teenage pregnancy, the timing of parenthood, and family size; as they relate to family behavior, such as marital patterns, child care use, and work and the family. Policy issues that relate to demographic changes in the family.

**SOCY 421 Women and Men in the World System (3)** Prerequisite: six credits of Sociology or permission of department. Critical overview of major approaches to development (modernization, dependency, world-systems) within comparative sociology. Impact on empirical research and the design and implementation of strategies of development. Salient topics in the comparative sociology of development including: democratization, trends in world income inequalities, structural adjustment programs, and changing patterns of labor force participation by women and men.

**SOCY 422 Social Change in Latin America (3)** Prerequisite: six credits in sociology or permission of department. Comparative study of social change in contemporary Latin America. Critical review of major theories and their use in empirical research, and assessment of social policy implications of alternative perspectives.

**SOCY 424 Sociology of Race Relations (3)** Prerequisite: six credits in sociology or permission of department. Also offered as AAST424. Credit will be granted for only one of the following: AAST424 or SOCY424. Analysis of race-related issues, with a primary focus on American society. The historical emergence, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

**SOCY 425 Gender Roles and Social Institutions (3)** Prerequisite: six credits of sociology or permission of department. Relationship between gender roles and the structure of one or more social institutions (e.g., the economy, the family, the political system, religion, education). The incorporation of gender roles into social institutions; perpetuation or transformation of sex roles by social institutions; how changing gender roles affect social institutions.

**SOCY 427 Deviant Behavior (3)** Prerequisite: six credits of sociology or permission of department. Current theories of the genesis and distribution of deviant behavior, and their implications for a general theory of deviant behavior. Definitions of deviance, labeling theory, secondary deviance.

**SOCY 428 Research in Inequality (3)** Prerequisite: SOCY202, SOCY203 and one course in Stratification and Inequality. Repeatable to 6 credits if content differs. This is the special topics research course for Stratification and Inequality.

**SOCY 430 Social Structure and Identity (3)** Prerequisite: six credits of sociology or permission of department. Theoretical issues in social psychology, focusing on social construction of identity. Identity formation and transformation in social process. Structural and cultural dimensions of social identity.

**SOCY 431 Principles of Organizations (3)** Prerequisite: six credits of sociology or permission of department. Structural and processual characteristics of organizations that make them effective for different purposes and in different environments. Effects of different institutional environments, small group processes, organizational networks, and leadership. Types of organizations studied include formal bureaucracies, professional organizations, and voluntary associations.

**SOCY 432 Social Movements (3)** Prerequisite: six credits of sociology or permission of department. Movements that seek change in the social and political structure of society. Origins, tactics, organization, recruitment, and success. Case studies come from such movements as labor, civil rights, student, feminist, environmental, neighborhood, and gay rights.

**SOCY 438 Research in Organizations and Institutions (3)** Prerequisite: SOCY202, SOCY203, and one course in Organizations and Institutions. Repeatable to 6 credits if content differs. This is the special topics research course for Organizations and Institutions.

**SOCY 440 Sociology of the Self-Concept (3)** Prerequisite: six credits of sociology or permission of department. The nature of the self-concept and the social forces that mold it. Major sociological, psychological, and psycho-analytic theories of the self-concept. Self-concept motives, mechanisms of self-defense, and the nature of a healthy self-concept. Empirical research dealing with the bearing of social interaction, social structure, social context and social institutions on the self-concept.

**SOCY 441 Social Stratification and Inequality (3)** Prerequisite: six credits of sociology or permission of department. Junior standing. The sociological study of social class, status, and power. Topics include theories of stratification, correlates of social position, functions and dysfunctions of social inequality, status inconsistency, and social mobility.

**SOCY 442 The Family and Social Class (3)** Prerequisite: six credits of sociology or permission of department. Development of the family from preindustrial to contemporary period. Emphasis upon class differences in family functioning and the roles of husbands and wives. Changes in these roles from preindustrial to postindustrial period, and variations by race. Discussion of the emergence of dual-worker and dual-career families and the issues they face.

**SOCY 443 The Family and Society (3)** Prerequisite: six credits of sociology or permission of department. Study of the family as a social institution; its biological and cultural foundations, historical development, changing structures, and functions, the interaction of marriage and parenthood, disorganizing and reorganizing factors in present-day trends.

**SOCY 444 Sociology of Children (3)** Prerequisite: six credits of sociology or permission of department. Socio-historical analysis of the changing nature and meaning of childhood. Analysis of social psychological, demographic, and socioeconomic aspects of contemporary children's lives, with a focus on peer groups, gender relations, family change, macroeconomic conditions, poverty, health, and educational well-being of children.

**SOCY 447 Small Group Analysis (3)** Prerequisite: SOCY201 or equivalent or permission of department. Analysis of small group structures and dynamics. Review of research on small groups in real life settings and in laboratories. Presentation of techniques used in small groups.

**SOCY 448 Research in Social Psychology (3)** Prerequisite: SOCY202, SOCY203, and one course in Social Psychology. Repeatable to 6 credits if content differs. This is the special topics research course in Social Psychology

**SOCY 450 Measurement of Time, Work, and Leisure (3)** Prerequisite: six credits of sociology or permission of department. How Americans use time, with specific reference to work, housework, personal and free time activities. Time-use differences across methods, social groups and cultures. Subjective time. Implications for time management, societal quality of life, social policy, and theory.

**SOCY 456 Sociology of Consumerism (3)** Prerequisites: SOCY 203 and three additional credits of sociology or permission of department. Issues relating to consumerism. Among the issues to be explored are advertising, the settings in which we consume, what we consume and why, the changing nature of consumption.

**SOCY 460 Sociology of Work (3)** Prerequisite: six credits of sociology or permission of department. Analysis of the American work world with special attention to the impact of social change and occupational conflicts on the individual worker. Professionalization, career patterns, problems of minority groups and the future of work.

**SOCY 462 Women in the Military (3)** Prerequisite: six credits of sociology or permission of department. Cross-national analysis of past, present, and future trends in women's roles in the military. Effects on women's roles in armed forces of cultural forces, national security, technological change, demographic patterns, occupational structures, labor shortages, and considerations of efficiency and rationality.

**SOCY 463 Sociology of Combat (3)** Prerequisite: six credits of sociology or permission of department. Sociological theories and concepts related to combat. Influence of historical events on relations between nations and between the military and society. Effects of U.S. social structure on actions in combat; effects of involvement in combat on social structure and on members of society. Cohesion and leadership in military units.

**SOCY 464 Military Sociology (3)** Prerequisite: six credits of sociology or permission of department. Social change and the growth of military institutions. Complex formal military organizations. Military service as an occupation or profession. The sociology of military life. Relations between military institutions, civilian communities and society.

**SOCY 465 The Sociology of War (3)** Prerequisite: six credits of sociology or permission of department. The origin and development of armed forces as institutions, the social causes, operations and results of war as social conflict; the relations of peace and war and revolution in contemporary civilizations.

**SOCY 467 Sociology of Education (3)** Prerequisite: six credits of sociology or permission of department. Sociological analysis of educational institutions and their relation to society: goals and functions, the mechanisms of social control, and the impacts of stratification and social change. Study of the school as a formal organization, and the roles and subcultures of teachers and students.

**SOCY 498 Selected Topics in Sociology (1-3)** Prerequisite: six credits of sociology or permission of department. Repeatable to 6 credits. Topics of special interest to advanced undergraduates in sociology. Such courses will be offered in response to student request and faculty interest.

## SPAN – Spanish

The language of instruction in all courses is Spanish unless otherwise noted.

**SPAN 101 Elementary Spanish I (4)** Four hours of discussion/recitation per week. Prerequisite: No previous Spanish; high school level 1 Spanish with grade of A or B; high school level 2 Spanish with a grade of C or below. Not open to native/fluent speakers of Spanish. Introduction to the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading and writing.

**SPAN 102 Elementary Spanish II (4)** Four hours of discussion/recitation per week. Prerequisite: SPAN101 at UMCP or equivalent. Not open to native/fluent speakers of Spanish. Further study of the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading and writing.

**SPAN 103 Intensive Elementary Spanish (4)** Not open to students who have completed SPAN101, SPAN102, more than two years of high school Spanish, or is a fluent/native speaker of Spanish. Credit will be granted for only one of the following: SPAN102 or SPAN103. Covers speaking, reading, writing, listening, and culture of Spanish-speaking world.

**SPAN 125 Spanish Civilization: From Kingdoms to Nationalities (3)** Introduction to the cultural heritage of the Spanish people, their traditions, customs, arts and literature, with special emphasis on the interrelationship of social and literary history.

**SPAN 201 Intermediate Spanish (4)** Prerequisite: SPAN102 or SPAN103 at UMCP or high school level 3 Spanish with a grade of A or B or high school level 4 Spanish with a C or below. Not open to native/fluent speakers of Spanish. Formerly SPAN 203. Continued development of the functions and structures of the Spanish language with emphasis on the four skills of listening, speaking, reading, and writing.

**SPAN 203 Intensive Intermediate Spanish (4)** Four hours of discussion/recitation per week. Prerequisite: SPAN103 or equivalent. Not open to students who have completed four years of high school Spanish or is a fluent/native speaker of Spanish. Credit will be granted for only one of the following: SPAN201 or SPAN203. Formerly SPAN 201. Covers speaking, reading, writing, listening, and culture of Spanish-speaking world. Not open to fluent and native speakers of Spanish, or to students who have completed four years of high school Spanish.

**SPAN 204 Spanish Grammar Review (3)** Prerequisite: SPAN203 (formerly SPAN201); or high school level 4 or 5 with a grade of A or B; or permission of department. Not open to students who have completed SPAN202 or native/fluent speakers of Spanish. Credit will be granted for only one of the following: SPAN202 or SPAN204. Formerly SPAN 202. An in-depth study and analysis of selected grammatical topics in a contextualized framework.

**SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the United States (3)** Prerequisite: Native or near native knowledge of oral Spanish and no formal education in Spanish. Review of oral and written Spanish for students who have native or near-native ability in Spanish, but have never studied it in a formal setting.

**SPAN 207 Reading and Writing in Spanish (3)** Prerequisite: SPAN201; or permission of department. Selected readings with emphasis on reading comprehension and the development of reading strategies. Work in composition writing and a review of selected grammatical topics. Complements material of SPAN 202.

**SPAN 211 Intermediate Conversation (3)** Prerequisite: SPAN201 or permission of department. Not open to native/fluent speakers of Spanish. Formerly SPAN 205. Development of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

**SPAN 221 Introduction to Literature (3)** Prerequisite: SPAN207 or permission of department. Selected readings in various genres in Spanish and Latin American literature. Discussion and written reports in Spanish.

**SPAN 222 Cultural Difference in Contemporary Latin America (3)** Introduction to representations and expressions in Latin America: cultural stereotypes, representations of difference, forms of discrimination, sublimation of difference into national identity, and the staging of the other. Taught in English.

**SPAN 223 United States Latino Culture (3)** 45 semester hours. Survey of the diverse historical, political, and economic issues contributing to the formation of U.S Latino culture(s) and communities. Representative Latino cultural texts-literary, artistic, musical, film, and performances-will be studied and discussed. In English.

**SPAN 224 Violence and Resistance in the Americas (3)** Indigenous vision of violence and resistance in the Americas. Texts and maps from the European explorers and conquerors are also studied. Readings include primary texts from the 16th as well as from the 20th century. All readings are in English. No Spanish is required.

**SPAN 225 Cultures of the Contact Zones - Seville, Al-Andalus and the Atlantic World (3)** Two hours of lecture and one hour of discussion/recitation per week. Also offered as HONR248E. Credit will be granted for only one of the following: HONR248E or SPAN225. This CORE course is aimed to fit a newly established program in Seville forthcoming in the Winter Term 2005, repeated in subsequent years. Content of course is broad enough to deal with issues of multiculturalism is Spain but also specific enough to center on the city of Seville and the Andalusian region.

**SPAN 228 Selected Topics in Latin American Literature and Society (3-6)** Repeatable to 6 credits if content differs. Also offered as PORT228. Credit will be granted for only one of the following: SPAN228 or PORT228. Variable cultural studies topics on literature and society in contemporary Latin America.

**SPAN 234 Issues in Latin American Studies I (3)** Two hours of lecture and one hour of discussion/recitation per week. Also offered as PORT234 and LASC234. Credit will be granted for only one of the following: SPAN234 or PORT234 or LASC234. Interdisciplinary study of major issues in Latin America and the Caribbean, including Latin America's cultural mosaic, migration and urbanization. Democratization and the role of religions.

**SPAN 235 Issues in Latin American Studies II (3)** Two hours of lecture and one hour of discussion/recitation per week. Also offered as PORT235 and LASC235. Credit will be granted for only one of the following: SPAN235 or PORT235 or LASC235. Major issues shaping Latin American and Caribbean societies including the changing constructions of race, ethnicity, gender and class as well as expressions of popular cultures and revolutionary practices. A continuation of SPAN/PORT/LASC234, but completion of 234 is not a prerequisite.

**SPAN 301 Advanced Grammar and Composition I (3)** Prerequisite: SPAN202. Recommended: SPAN207. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical, and stylistic devices will be highlighted.

**SPAN 302 Advanced Grammar and Composition II (3)** Prerequisite: SPAN301. Practice in and writing of different types of compositions and essays, including narrations, descriptions, and persuasive writing. Review of problematic syntactical structures.

**SPAN 306 Spanish II for Native Speakers (3)** Prerequisite: SPAN206. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical and stylistic devices will be highlighted. Designed for Spanish speakers educated in English.

**SPAN 307 Oral Communication Skills for Native Speakers of Spanish (3)** Development of techniques for formal public speaking in Spanish. Writing and delivering oral presentations for varied audiences and purposes. Includes strategies for organization, the use of rhetorical patterns, and the development of effective discourse. Designed for bilingual students who are native speakers of Spanish (Heritage Language learners); have been educated in the U.S. and whose Spanish ability is mainly oral.

**SPAN 310 Spanish Phonetics (3)** Prerequisite: SPAN202 or permission of department. Descriptive study of the Spanish sound system. Practice in phonetic perception, transcription, and articulation. Particular attention to sentence phonetics; juncture, rhythm, stress, pitch.

**SPAN 311 Advanced Conversation I (3)** Prerequisite: SPAN202 or SPAN211 or permission of department. Not open to native/fluent speakers of Spanish. Further development of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

**SPAN 312 Advanced Conversation II (3)** Not open to native/fluent speakers of Spanish. Prerequisite: SPAN311. Continued mastery of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation, and increase vocabulary. Emphasis on colloquial and technical language as well as development of linguistic accuracy. Individual and/or group oral presentation.

**SPAN 314 Daily Life in Mexico : An Intercultural Approach (1)** For students in UMS Study Abroad program in Mexico City. Cultural differences between life in the United States and Mexico.

**SPAN 315 Commercial Spanish I (3)** Prerequisite: SPAN301 or permission of department. Business Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish. Readings and discussions of Spanish commercial topics. May include exposure to Spanish business environments.

**SPAN 316 Practicum in Translation I (3)** Prerequisite: SPAN301 and permission of department. Translation of non-literary, non-technical texts into Spanish and/or English.

**SPAN 317 Translation II (3)** Prerequisite: SPAN316. Translation of non-literary, non-technical texts into Spanish and/or English.

**SPAN 318 Translation of Technical Texts (3)** Prerequisite: SPAN317. Repeatable to 6 credits if content differs. Translation of technical and specialized texts in various fields (e.g. medicine, law, international affairs, social work, journalism, technology) into Spanish and/or English.

**SPAN 321 Survey of Spanish Literature I (3)** Prerequisite: SPAN301 or permission of department. Overview of the history of Spanish literature from the 12th through the 17th century.

**SPAN 322 Survey of Spanish Literature II (3)** Prerequisite: SPAN301 or permission of department. Overview of the history of Spanish literature from the 18th century to the present.

**SPAN 323 Survey of Latin-American Literature I (3)** Prerequisite: SPAN301 or permission of department. Overview of the history of Latin American literature from the pre-Columbian era through the 18th century.

**SPAN 324 Survey of Latin-American Literature II (3)** Prerequisite: SPAN301 or permission of department. Overview of the history of Latin American literature from the 19th century to the present.

**SPAN 325 Spanish Civilization I (3)** Prerequisite: SPAN301 or permission of department. Spanish civilization from the pre-Spanish cultures through the Spanish Golden Age with emphasis on cultural, social, and artistic aspects.

**SPAN 326 Spanish Civilization II (3)** Prerequisite: SPAN301 or permission of department. Spanish civilization from the 18th century to the present day with emphasis on cultural, social, and artistic aspects.

**SPAN 346 Latin American Civilization I (3)** Prerequisite: SPAN301 or permission of department. Cultural heritage of the Latin American peoples from the pre-Columbian period to independence.

**SPAN 347 Latin American Civilization II (3)** Prerequisite: SPAN301 or permission of department. Cultural heritage of the Latin American peoples from independence to the present.

**SPAN 356 Literary Translation I (3)** Prerequisite: SPAN317 or permission of department. Translation of literary texts into Spanish and/or English: narrative.

**SPAN 357 Literary Translation II (3)** Prerequisite: SPAN317 or permission of department. A continuation of SPAN356. Translation of literary texts into Spanish and/or English: dialogue and other forms.

**SPAN 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**SPAN 388 Language House Spring Colloquium (1)** Prerequisite: Residence in Language House. Repeatable to 8 credits if content differs. For students residing in the Language House Immersion Program. Focuses on the development of skills in the target language and acquiring the cultural knowledge of the countries that speak the target language.

**SPAN 399 Independent Study in Spanish (1-3)** Prerequisite: permission of department. Repeatable to 3 credits. Specific readings in literature or a translation project under the supervision of a faculty member of the department.

**SPAN 401 Advanced Composition I (3)** Prerequisite: SPAN302 or permission of department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

**SPAN 402 Advanced Composition II (3)** Prerequisite: SPAN401 or permission of department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

**SPAN 403 Research and Information Sources in Latin American Studies (1)** Two hours of lecture per week. Corequisite: SPAN458;. Recommended: SPAN234 and SPAN235. Senior standing. Also offered as LASC403. A foundational course in Latin American Studies information sources. Students will devise a search strategy and explore reference materials available to the Latin American Studies researcher.

**SPAN 404 The Short Story in the Middle Ages (3)** Prerequisites: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Presents an overview of one of the most relevant genres of the Middle Ages: the short story, which entailed a process of writing and rewriting of common sources.



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**SPAN 405 The Sentimental Romance (3)** Prerequisites: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Explores Spain's Sentimental Romances in the Late Middle Ages with an interdisciplinary critical approach.

**SPAN 406 Don Juan Manuel's Fictional and Historical Prose (3)** Prerequisites: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Dedicated to the literary production of an important author: Don Juan Manuel. By examining the interaction among writing, reading and the oral acquisition of knowledge in his works, special attention will be given to how the border between fact and fiction is constructed in the Middle Ages.

**SPAN 407 Jews, Moslems, and Christians in Medieval Spain (3)** Prerequisites: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Presents an overview of the cultural, political and religious coexistence of Jews, Moslems and Christians in Medieval Spain as it changed from tolerance to persecution and survival.

**SPAN 408 Great Themes of the Hispanic Literatures (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Major themes in the literature of Spain or Spanish-America. Each theme will be announced when the course is offered.

**SPAN 409 Great Themes of the Hispanic Literatures (3)** Pervading themes in the literature of Spain or Spanish-America. Each theme will be announced when the course is offered.

**SPAN 410 Literature of the Middle Ages I (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Spanish literary history from the eleventh through the fifteenth century. Reading of representative texts. This course covers until the year 1350.

**SPAN 411 Literature of the Middle Ages II (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Spanish literary history from the eleventh through the fifteenth century. Reading of representative texts. This course covers from 1350 to 1500.

**SPAN 412 Women in the Middle Ages: Myths and Daily Life (3)** Prerequisite: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Explores the role of women during the Middle Ages and analyzes the active participation of women in a society in which men's occupation was warfare. Also explores "feminine voices" and female representations in the literature of the times.

**SPAN 413 Libro de Buen Amor (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Literary traditions in the Libro de buen amor.

**SPAN 414 La Celestina (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Literary and cultural traditions in La Celestina.

**SPAN 415 Commercial Spanish II (3)** Prerequisite: SPAN 315 or permission of department. Sophomore standing. Business Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish. Readings and discussions of international topics. Cross-cultural considerations relative to international business operations, including exporting and banking.

**SPAN 416 Practicum in Translation V (3)** Prerequisite: SPAN357 or permission of department. Translation of complete literary texts from Spanish into English. Presentation and comparison of special problems encountered in individual projects.

**SPAN 417 Practicum in Translation VI (3)** Prerequisite: SPAN416 or permission of department. Translation of complete literary texts from Spanish into English. Evaluation of different versions of the original. Problems of interpretation, literary structure and analysis.

**SPAN 418 Hispanic Literature in Translation (3)** Repeatable to 6 credits if content differs.

**SPAN 420 Poetry of the 16th Century (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Selected readings and literary analysis.

**SPAN 421 Prose of the 16th Century (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Selected readings and literary analysis.

**SPAN 422 Cross-Cultural Communication (3)** Prerequisite: SPAN315. Junior standing. Focuses on the relationship of language and culture of those operating in world markets. Particular attention will be given to cross-cultural communication, linguistic systems, and culture specific perceptions of the Hispanic world.

**SPAN 424 Drama of the Sixteenth Century (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. From the earliest autos and pasos, the development of Spanish drama anterior to Lope de Vega, including Cervantes.

**SPAN 425 Introduction to Hispanic Linguistics I: Basic Concepts (3)** Prerequisite: SPAN301 or equivalent or permission of department. This course begins with an introduction to general concepts in linguistics, from language function and the brain to communication, culture, and thought, and their relation to other disciplines in the social sciences. The main purpose of this course is to provide an overview of Hispanic linguistics through multiple perspectives, while exploring the areas of Spanish morphology, syntax, and semantics. This course will also focus on the structural tendencies of Spanish through a variety of practical activities.

**SPAN 426 Introduction to Hispanic Linguistics II: Language in Use (3)** Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: SPAN301 or permission of department. Recommended: SPAN425. Also offered as SPAN626. Designed for students without previous experience in Linguistics. Focus on language variation and use, linguistic change, and bilingualism.

**SPAN 430 Cervantes: Don Quijote (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324.

**SPAN 431 Cervantes: Novelas Ejemplares and Entremeses (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Prerequisite: SPAN 321 or equivalent.

**SPAN 432 Colonial Latin American Literature (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Examines the key themes, writers, literary movements, and cultural debates of the colonial period.

**SPAN 433 Women and Culture in Colonial Latin America (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Considers questions of women and historical production, women writers in colonial times, and contemporary literary interpretations of colonial realities. Debates the continued legacy of female archetypes from the colonial period to the present, and epistemological questions regarding the production of knowledge.

**SPAN 434 Poetry of the 17th Century (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Selected readings, literary analysis, and discussion of the outstanding poetry of the period, in the light of the historical background.

**SPAN 435 Prose of the 17th Century (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Selected readings, literary analysis, and discussion of the outstanding prose of the period, in the light of the historical background.

**SPAN 436 Spanish Baroque Drama (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Reading and critique of the major dramas of the Spanish Golden Age: Lope De Vega, Cervantes, Tirso De Molina and Colderon. This course will be taught in Spanish.

**SPAN 437 Drama of the Seventeenth Century (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Drama after Lope de Vega to Calderon de la Barca and the decline of the Spanish theater.

**SPAN 438 Special Topics in Colonial Latin America (3)** Prerequisites: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Repeatable to 99 credits if content differs. The conquest and colonization of the New World produced a textual corpus of invaluable importance for the foundation of Spanish American literary tradition. Special topics (themes, authors, debates, etc.) relevant to the Colonial period will be addressed.

**SPAN 440 Literature of the Eighteenth Century (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Traditionalism, Neo-Classicism, and Pre-Romanticism in prose, poetry, and the theater; esthetics and poetics of the enlightenment.

**SPAN 446 Encounters of Atlantic Cultures (3)** Prerequisites: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Emphasis will be placed on the Hispanic literature and artistic production resulting from the cultural exchange of the two sides of the Atlantic. Also, examines canonical as well as less known texts from the 16th century to the present with a cross-cultural, transnational and multiethnic lens.

**SPAN 448 Special Topics in Latin American Civilization (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Repeatable to 6 credits if content differs. Intensive independent study of a selected topic related to Latin American civilization.

**SPAN 449 Special Topics in Spanish Civilization (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Repeatable to 6 credits if content differs. An intensive study of a selected topic related to Spanish civilization.

**SPAN 450 The Hispanic Caribbean (3)** Prerequisite: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Credit will be granted for only one of the following: SPAN408C or SPAN450. Formerly SPAN 408C. Explores the Hispanic Caribbean as "island spaces" of multiple migrations and cultural identities, as sites of colonial experiences and post-colonial debates.

**SPAN 451 Contemporary Cuban Culture, Literature, and Film (3)** Prerequisite: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Explores all the phases of the 1959 Cuban Revolution as depicted in the art it produced within the island and in the greater Cuban diaspora.

**SPAN 452 The Romantic Movement in Spain (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Poetry, prose and drama of the Romantic and Post-Romantic periods.

**SPAN 454 Nineteenth Century Fiction (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Significant novels of the nineteenth century.

**SPAN 456 Nineteenth Century Drama and Poetry (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Significant dramas and poetry of the Realist Period.

**SPAN 458 Senior Capstone Course in Latin American Studies (3)** Three hours of lecture per week. Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Recommended: SPAN403. Senior standing. Also offered as LASC458. Capstone course for advanced students in the Latin American Studies Certificate Program or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

**SPAN 459 Latin American Women Writers (3)** Prerequisite: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Repeatable to 99 credits if content differs. Emphasis will be placed on contemporary Latin American women writers.

**SPAN 460 The Generation of 1898 and Its Successors (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Authors and works of all genres of the generation of 1898 and those of the immediately succeeding generation.

**SPAN 461 The Generation of 1898 and Its Successors (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Authors and works of all genres of the generation of 1898 and those of the immediately succeeding generation.

**SPAN 462 Twentieth Century Drama (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Significant plays of the twentieth century.

**SPAN 463 Latin American Drama (3)** Prerequisite: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Emphasis will be placed on Latin American plays of the twentieth century.

**SPAN 464 Contemporary Spanish Poetry (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Spanish poetry from the generation of 1927 to the present.

**SPAN 466 The Contemporary Spanish Novel (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. The novel and the short story from 1940 to the present.

**SPAN 467 Latin American Short Story (3)** Prerequisite: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. A pivotal genre in modern Latin American literature: The Short Story will be examined.

**SPAN 468 Modernism and Post-Modernism in Spain and Spanish-America (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Repeatable to 9 credits if content differs. A study of the most important works and authors of both movements in Spain and Spanish-America.

**SPAN 469 Modernism and Post-Modernism in Spain and Spanish-America (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Repeatable to 9 credits if content differs. A study of the most important works and authors of both movements in Spain and Spanish-America.

**SPAN 470 United States Latino Literature (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Introduction to U.S. Latino literature through exploration of narrative, poetry, and drama by Chicano, Nuyorican, and Cuban American writers. Discussion of sociohistorical issues involved in construction of Latino cultural identity in literature.

**SPAN 471 United States Latina Fiction (3)** Prerequisites: SPAN321, SPAN322, SPAN323, or SPAN324. An introduction to United States latina fiction through the study of short stories, novels, poetry, etc. It explores strategies of representation by women of color.

**SPAN 472 Latin American Perspectives on the United States (3)** Prerequisite: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Latin Americans have grappled with the looming and often conflicting presence of the United States in the Western Hemisphere and as a world power. Latin American discursive responses to the United States will be examined.

**SPAN 473 U.S. Latino Performance (3)** Prerequisites: SPAN321, SPAN322, SPAN323, or SPAN324. An introduction to United States Latino Performance texts by Chicano, Nuyorican, Cuban-American, Dominican, Central-American and others.

**SPAN 474 Central American Literatures, Cultures, and Histories (3)** Prerequisite: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. An overview of Central American history and cultural production, focusing primarily but not exclusively on literary texts.

**SPAN 478 Special Topics in United States Latino Cultures (3)** Prerequisite: SPAN321, SPAN322, SPAN323, or SPAN324. 45 semester hours. Repeatable to 99 credits if content differs. Explores special topics in US Latino Cultures, ranging from Chicano, Nuyorican, Cuban-American, Dominican, Central-American and other border cultural identities.

**SPAN 479 Honors Thesis (3-6)** Prerequisite: admittance to honors program in Spanish and Portuguese Department. Repeatable to 6 credits if content differs. Researching and writing an honors thesis under the direction of a professor.

**SPAN 480 Spanish-American Essay (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. A study of the socio-political contents and aesthetic qualities of representative works from the colonial to the contemporary period.

**SPAN 481 Spanish American Essay (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. A study of the socio-political contents and aesthetic qualities of representative works from the colonial to the contemporary period, with emphasis on the essay of the twentieth century.

**SPAN 488 Spanish-American Fiction (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

**SPAN 489 Spanish-American Fiction (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

**SPAN 491 Honors Reading Course: Poetry (3)** Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

**SPAN 492 Honors Reading Course (3)** Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

**SPAN 493 Honors Reading Course: Drama (3)** Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

**SPAN 495 Honors Reading (3)** Prerequisite: admittance to Spanish and Portuguese Honors or permission of department. Supervised reading.

**SPAN 498 Spanish-American Poetry (3)** Prerequisite: SPAN321, SPAN322, SPAN323 or SPAN324. Main trends, authors and works from the conquest to Ruben Dario.

## STAT – Statistics and Probability

**STAT 100 Elementary Statistics and Probability (3)** Prerequisite: permission of Math Department based on satisfactory score on MATHEMATICS PLACEMENT EXAM; or MATH110, MATH112, MATH113, or MATH115. Not open to students who have completed MATH 111 or any MATH or STAT course with a prerequisite of MATH 141. Credit will be granted for only one of the following: MATH 111 or STAT 100. Simplest tests of statistical hypotheses; applications to before-and-after and matched pair studies. Events, probability, combinations, independence. Binomial probabilities, confidence limits. Random variables, expected values, median, variance. Tests based on ranks. Law of large numbers, normal approximation. Estimates of mean and variance.

**STAT 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**STAT 400 Applied Probability and Statistics I (3)** Prerequisite: MATH141. Not acceptable toward graduate degrees in STAT, AMSC, or MATH. Credit will be granted for only one of the following: BMGT231, ENEE324 or STAT400. These courses are not interchangeable. Consult your program requirements or advisor for what is acceptable toward your program of study. Random variables, standard distributions, moments, law of large numbers and central limit theorem. Sampling methods, estimation of parameters, testing of hypotheses.

**STAT 401 Applied Probability and Statistics II (3)** Prerequisite: STAT400 (Not acceptable toward graduate degrees in STAT, AMSC, or MATH). Point estimation - unbiased and consistent estimators. Interval estimation. Minimum variance and maximum likelihood estimators. Testing of hypotheses. Regression, correlation and analysis of variance. Sampling distributions. Elements of non-parametric methods.

**STAT 405 Stochastic Models for Queues and Networks (3)** Prerequisite: STAT400 or ENEE324. Credit will be granted for only one of the following: BMGT435 or STAT405. Review of probability and random variables. Generating functions. Poisson and renewal processes. Single server queues with random customer arrivals. Markov models, balance equations. Examples of queuing networks. Applications to computer and communications networks.

**STAT 410 Introduction to Probability Theory (3)** Prerequisite: MATH240 and MATH241. Also offered as SURV410. Credit will be granted for only one of the following: STAT410 or SURV410. Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments. Characteristic functions. Limit theorems.

**STAT 420 Introduction to Statistics (3)** Prerequisite: STAT410 or SURV410. Also offered as SURV420. Credit will be granted for only one of the following: STAT420 or SURV420. Point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood. Confidence intervals for parameters of normal distribution. Hypothesis testing, most powerful tests, likelihood ratio tests. Chi-square tests, analysis of variance, regression, correlation. Nonparametric methods.

**STAT 430 Introduction to Statistical Computing and SAS (3)** Prerequisite: STAT400 or permission of instructor. Descriptive and inferential statistics. SAS software: numerical and graphical data summaries; merging, sorting and splitting data sets. Least squares, regression, graphics and informal diagnostics, interpreting results. Categorical data, lifetime data, time series. Applications to engineering, life science, business and social science.

**STAT 440 Sampling Theory (3)** Prerequisite: STAT401 or STAT420. Also offered as SURV440. Credit will be granted for only one of the following: STAT440 or SURV440. Simple random sampling. Sampling for proportions. Estimation of sample size. Sampling with varying probabilities. Sampling: stratified, systematic, cluster, double, sequential, incomplete.

**STAT 464 Introduction to Biostatistics (3)** Prerequisite: One semester of calculus. Not acceptable for credit towards degrees in mathematics or statistics. Junior standing. Probabilistic models. Sampling. Some applications of probability in genetics. Experimental designs. Estimation of effects of treatments. Comparative experiments. Fisher-Irwin test. Wilcoxon tests for paired comparisons.

**STAT 470 Actuarial Mathematics (3)** Prerequisite: Calculus through MATH240 and MATH241. Recommended: STAT400. Major mathematical ideas involved in calculation of life insurance premiums, including compound interest and present valuation of future income streams; probability distribution and expected values derived from life tables; the interpolation of probability distributions from values estimated at one-year multiples; the 'Law of Large Numbers' describing the regular probabilistic behavior of large populations of independent individuals; and the detailed calculation of expected present values arising in insurance problems.

**STAT 498 Selected Topics in Statistics (1-6)** Prerequisite: permission of department. Repeatable to 16 credits. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the MATH/STAT major committee. Students register for reading in statistics under this number.

## SURV – Survey Methodology

**SURV 400 Fundamentals of Survey Methodology (3)** Prerequisite: STAT100 or permission of department. Credit will be granted for only one of the following: SURV699M or SURV400. Formerly SURV 699M. Introduces the student to a set of principles of survey design that are the basis of standard practices in the field. The course exposes the student to both observational and experimental methods to test key hypotheses about the nature of human behavior that affect the quality of survey data. It will also present important statistical concepts and techniques in simple design, execution, and estimation, as well as models of behavior describing errors in responding to survey questions. Not acceptable to graduate degrees in SURV.

**SURV 410 Introduction to Probability Theory (3)** Prerequisite: MATH240; and MATH241 or permission of department. Also offered as STAT410. Credit will be granted for only one of the following: SURV410 or STAT410. Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments, characteristic functions, and limit theorems.

**SURV 420 Introduction to Statistics (3)** Prerequisite: SURV410 or STAT410. Not open to students who have completed STAT420. Credit will be granted for only one of the following: STAT420 or SURV420. Mathematical statistics, presenting point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood, confidence intervals for parameters of normal distributions, chi-square tests, analysis of variance, regression, correlation, and nonparametric methods.

**SURV 440 Sampling Theory (3)** Prerequisite: STAT401 or STAT420. Not open to students who have completed STAT440. Simple random sampling, sampling for proportions, estimation of sample size, sampling with varying probabilities of selection, stratification, systematic selection, cluster sampling, double sampling, and sequential sampling.

## THET – Theatre

**THET 110 Introduction to the Theatre (3)** Introduction to the people of the theatre: actors, directors, designers and backstage personnel. The core and characteristics of a play script; theatrical forms and styles; and theatre history.

**THET 111 Making Theatre: Art and Scholarship (3)** Prerequisite: THET110 or permission of department. Systematic introduction to the tools and techniques used by theatre practitioners.

**THET 112 Fundamentals of Performance (3)** Prerequisite: For Theatre majors or permission of department. Freshman standing. Examines the history and origins of performance in various cultures, types of performance on and off stage, and the space where performance happens.

**THET 113 Fundamentals of Theatre History (3)** For Theatre majors or permission of department. Freshman standing. Explores the process of artistic and cultural creation by tracing major developments in theatre and drama from Greeks to the present.

**THET 114 Fundamentals of Theatre Craft (3)** Two hours of lecture and three hours of laboratory per week. For Theatre majors or permission of department. Freshman standing. An introduction in basic theatre technology and craftsmanship. Students will learn the process of realizing a theatrical production through classroom instruction and participation in a University production.

**THET 115 Fundamentals of Play Analysis (3)** For Theatre majors or permission of department. Freshman standing. Explores four different, but overlapping, approaches to script analysis: storytelling, character, dramaturgy, and criticism.

**THET 116 Fundamentals of Theatrical Design (3)** Two hours of lecture and three hours of laboratory per week. For Theatre majors or permission of department. Freshman standing. Examines theatre as an environmental art that is realized through collaboration between set, costume, and lighting designers.

**THET 120 Introduction to Acting (3)** Two hours of lecture and two hours of laboratory per week. For non-majors only. Through scene study, exercises, and improvisation, an appreciation is developed for the working habits of actors which will aid them in rehearsal as well as performance.

**THET 170 Theatre Craft I (3)** Two hours of lecture and one hour of laboratory per week. A survey of the fundamentals of theatrical production with emphasis on scenery construction. Practical work on Theatre Department productions is included.

**THET 171 Theatre Craft II (3)** Two hours of lecture and one hour of laboratory per week. A survey of the fundamentals of theatrical production with emphasis on costume construction and lighting design. Practical work on University Theatre productions is included.

**THET 195 Gender and Performance (3)** Recommended: THET112 and THET113. Intersections between recent research on gender and public performance through history, including theatre, film, and television.

**THET 199 Independent Study (1-3)** Prerequisite: permission of instructor. Freshman standing. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic, lighting, or costume designs, or a stage production.

**THET 210 Movement for Actors (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: THET112, THET113, THET114, THET115, and THET116; or permission of department. Corequisite: THET220. Not open to students who have completed THET421. Credit will be granted for only one of the following: THET210 or THET421. Formerly THET 421. Studies and intensive exercises to aid the acting student in understanding physical and emotional energy flow, body placement, alignment and body image, as well as the physical aspects of character.

**THET 220 Acting I (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: THET112, THET113, THET114, THET115 and THET116; or permission of department. For THET majors only. Exercises structured to develop the student's concentration, imagination, sense and emotional memory. Textual analysis, character analysis and scene study; and the application of these techniques to character portrayal through performance of short scenes.



## 244 Approved Courses

**THET 221 Voice for the Actor (3)** Prerequisites: THET110, THET220 and by audition and permission of department. Freeing the natural voice. Exploration and connection of the actor's voice to thought, impulse, and emotion. Work in release of tension, resonance, extending the voice and articulation.

**THET 240 African Americans in Film and Theatre (3)** Two hours of lecture and two hours of discussion/recitation per week. Survey of the history of the image of African Americans in film and theatre.

**THET 273 Theatre Graphics I (3)** Prerequisite: THET112, THET113, THET114, THET115 and THET116; or permission of department. An introduction in graphic techniques for theatrical design and production. The emphasis is on drafting by hand, with an introduction to computer-aided drafting and design.

**THET 279 Theatre Workshop I (1)** One hour of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Supervised participation in backstage staffing of University Theatre productions.

**THET 282 Stage Makeup (3)** Credit will be granted for only one of the following: THET182 or THET282. Formerly THET 182. Students learn to design and execute character makeup based on research and script analysis. Studying fundamental facial anatomy, the class learns to manipulate light and shadow with makeup to enhance and alter the shape of facial features. Once these techniques are mastered, the class moves on to more complex exercises, including Old Age, Facial Hair, Wounds and Fantasy.

**THET 284 Stage Costume Construction I (3)** Prerequisite: permission of department. Credit will be granted for only one of the following: THET284 or THET486. Formerly THET 486. Study and practical experience in garment construction and related costume crafts as used in theatre costume design. Flat pattern development, corset construction, theatrical sewing techniques and organization of the costume construction process.

**THET 286 Experiential Learning I (1-3)** Five hours of laboratory per week. Prerequisite: THET112 ,THET113,THET114, THET115, THET116 and permission of department. Sophomore standing. Not open to THET students who have completed THET386. Introductory internship in theatre. Constructed to help students in their sophomore year gain practical experience in a supportive work environment in the theatre. Student must research and propose internship to a Faculty Advisor and Internship Venue.

**THET 288 Fundamentals Project (1)** Prerequisite: Four of the following:THET112, THET113, THET114, THET115, and THET116; or permission of department. Sophomore standing. For THET majors only. Repeatable to 2 credits if content differs. The Fundamentals Project is required of all theatre majors following successful completion of the Fundamentals Core. This project is a collaborative performance presented to an audience of faculty and theatre students during the fall semester of a student's second year. It is a prerequisite for continuing on to more advance classes.

**THET 290 American Theatre 1750 to 1890 (3)** Formerly THET 310. Traces the evolution of the American theatre from its beginning through 1890, aligning this theatre with the major shifts and movements of American society itself, and arriving at the uniquely American theatre and culture.

**THET 291 American Theatre 1890-Present (3)** Formerly THET 310. Traces the evolution of the American theatre during the twentieth century, aligning this theatre with the major shifts and movements of American society itself, and arriving at the uniquely American theatre and culture of today.

**THET 293 Black Theatre and Performance I (3)** Sophomore standing. Thematic and historical survey of African-American drama from the late nineteenth century to the 1960s. Emphasis on sociopolitical context, thematic thrust, issues, styles, the aesthetic reflected in the work, impact on African-American and general theatre audiences.

**THET 294 Black Theatre and Performance II (3)** Sophomore standing. Thematic and historical survey of African-American drama from the 1960s to the present. Emphasis on sociopolitical context, thematic thrust, issues, styles, the aesthetic reflected in the work, impact on African-American and general theatre audiences.

**THET 299 Independent Study (1-3)** Prerequisite: permission of instructor. Sophomore standing. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic, lighting, or costume designs, or a stage production.

**THET 310 Voice for the Actor I (3)** Prerequisite: THET220; audition and permission of department. Corequisite: THET324. Sophomore standing. Not open to students who have completed THET221. Credit will be granted for only one of the following: THET221 or THET310. Freeing the natural voice. In-depth experience of connection of actor's voice to thought, impulse and emotion. Tools for releasing tension, increasing resonance and range, and refining articulation will be explored.

**THET 320 Acting II (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: THET110 and THET220. Corequisites: THET111 and THET221. Continuation of THET 220. Emphasis on the fundamentals of acting: personalization, objectives, and characterization.

**THET 324 Acting II: Craft (3)** Four hours of laboratory per week. Prerequisite: THET220, an audition and permission of department. Pre- or corequisite: THET310. Junior standing. Not open to students who have completed THET320. Intensive practice of craft fundamentals in order to deepen primary skills. The work involves a progressive sequence of exercises, studies and small scale projects, including one monologue and one scene from a contemporary play.

**THET 325 Acting III: Fundamentals (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: THET324, an audition and permission of department. Not open to students who have completed THET320. Continuation of THET 324. Emphasis on the fundamentals of acting: personalization, objectives, and characterization.

**THET 330 Play Directing I (3)** Prerequisites: THET111, THET170 and THET220; or permission of department. A lecture-laboratory course dealing with the techniques of coordinating, designing and guiding the production of a script through to performance. Study and practice in stage composition, movement, pacing, script and character analysis, and rehearsal routines. Emphasis on methods of communicating a script to an audience.

**THET 340 Screenplay Analysis (3)** Prerequisite: permission of department. Sophomore standing. Credit will be granted for only one of the following: THET340 or THET499G. Formerly THET 499G. Examines the narrative structure of screenplays of major motion pictures.

**THET 341 Screenwriting I (3)** One hour of lecture and two hours of discussion/recitation per week. Prerequisite: junior English. Introduction to screenwriting, emphasizing visual literacy necessary for effective television and film writing.

**THET 350 History of American Musical Theatre and Popular Culture (3)** An exploration of the complicated history of some of America's most popular entertainments from learned pig shows, to vaudeville, to musical theatre. It connects the history of America's diverse racial and ethnic communities to the evolution of forms like minstrelsy, Wild West Shows, and showboat theatre. It also traces the history of our most popular and enduring art form—the musical comedy—from the Ziegfeld Follies to Rent and beyond.

**THET 371 Scenic Design I (3)** Prerequisites: THET112, THET113, THET114, THET115, THET116, THET288 and THET273 or permission of department. Credit will be granted for only one of the following: THET371 or THET375. Formerly THET 375. A study of design theory and style. Methods and techniques of coordination of all elements of scenic design for theatre.

**THET 372 Stage Property Design (3)** Prerequisite: THET114 or permission of department. Materials and techniques for the design and execution of stage properties with special emphasis on period research, special materials, and special effects.

**THET 373 Rendering for the Theatre I (3)** Prerequisite: THET112, THET113, THET114, THET115, and THET116; or permission of department. Credit will be granted for only one of the following: THET373 or THET484. Formerly THET 484. A study in the techniques and tools of drawing and painting. It is designed for the student to develop rendering and drawing skills for theatrical design presentation.

**THET 377 Lighting Design I (3)** Prerequisite: THET112, THET113, THET114, THET115, THET116, THET288 & THET273 or permission of department. Credit will be granted for only one of the following: THET377 or THET476. Formerly THET 476. A study of the theories of electrification, instruments, design, color, and control for the stage. Practical work on productions.

**THET 380 Sound Design (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: THET114, THET115, and THET116 or permission of instructor. Sophomore standing. Theatre Sound Design is a first course in designing sound for stage productions.

**THET 383 Costume Design I (3)** Prerequisites: THET112, THET113, THET114, THET115, THET116, and THET373; or permission of department. Credit will be granted for only one of the following: THET383 or THET480. Formerly THET 480. Basic principles of theatre costume design and introduction to rendering skills. Emphasis on development of design conception, unity, character statement, basic clothing design and period style adaptation.

**THET 384 Stage Costume Construction II (3)** Prerequisite: THET284 or permission of department. Credit will be granted for only one of the following: THET384 or THET487. Formerly THET 487. Study and practical experience in the construction of stage costumes, props and accessories. Pattern development by draping, millinery, and crafts.

**THET 386 Experiential Learning (3-6)** Prerequisite: permission of department. Junior standing.

**THET 387 Fundamentals of Theatrical Design (3)** Prerequisites: THET110 and THET111; or permission of department. Recommended: THET170, THET171. Survey of costume, lighting, scenery, and sound design fundamentals.

**THET 388 Special Topics in Performance Studies (3)** Prerequisite: THET112, THET113, THET114, THET115, and THET116. Sophomore standing. Repeatable to 6 credits if content differs. Performance Studies is a broad discipline that offers strategies for exploring diverse texts from diverse perspectives. Students are encouraged to explore critical and practical approaches to research and performance, including the History and Practice of Festivals and Carnival Performances, Comedy, Performance in Everyday Life, Contemporary Theatre at the Margins, and Stage Adaptation.

**THET 399 Independent Study (1-3)** Prerequisite: permission of instructor. Sophomore standing. Repeatable to 6 credits if content differs. An independent study in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate in term papers, scenic, lighting, or costume designs, or a stage production.

**THET 408 Seminar: Theory and Performance Studies (3)** Three hours of discussion/recitation per week. Prerequisite: THET488 or THET489 and permission of department. Senior standing. Repeatable to 6 credits if content differs. Also offered as THET608. Credit will be granted for only one of the following: THET408 or THET608. Studies in theatre theory and performance studies from classical antiquity to the present.

**THET 410 The American Theatre (3)** Prerequisite: THET488 or THET489; and permission of instructor. Senior standing. Also offered as THET610. Credit will be granted for only one of the following: THET410 or THET610. The American theatre from 1750 to 1950, including the position of theatre in culture, its typical features, and major artists.

**THET 411 Voice for the Actor II (3)** Four hours of laboratory per week. Prerequisite: THET112, THET113, THET114, THET115, THET116, THET288, audition, and permission of department. Junior standing. Credit will be granted for only one of the following: THET311, THET499L or THET411. Formerly THET 311. Learn the International Phonetic Alphabet (IPA) and apply to exploration of sound and language. Designed to increase voice and speech awareness, and create a base knowledge from which to approach any accent or dialect.

**THET 420 Acting IV:Language and the Actor (3)** Four hours of laboratory per week. Prerequisite: THET325, an audition, and permission of department. Exploration and application of the techniques necessary for the preparation and performance of Shakespeare and other drama.

**THET 424 Movement II: Advanced Studies in Movement for the Actor (3)** Four hours of laboratory per week. Prerequisite: THET210, THET220, or permission of department. Junior standing. Intensive studies aimed at deepening primary skills and extending the actor's physical resources and imagination. Projects will consider movement sources and vocabularies of different types and styles of performance, such as verse, realism, presentational, melodrama, comedy, or self-scripted, in order to extend the actor's expressive range.

**THET 425 Acting V: Advanced Scene Study (3)** Two hours of lecture and two hours of laboratory per week. Prerequisites: THET325, an audition, and permission of department. The work of previous courses is brought together to assist students in discovering a personal process in creating characters in various genres of plays.

**THET 429 Actor's Studio (1-3)** Prerequisite: permission of department. Repeatable to 6 credits. Participation in dramatic roles executed under faculty supervision in the department's productions. Eligible students must make commitments and plan performances with course instructor during preregistration.

**THET 430 Play Directing II (3)** Prerequisite: THET330 or permission of department. Discussion of the preparation procedures and rehearsal practices necessary for the presentation of a variety of theatrical styles and forms. Emphasis on understanding the relationship between the director, the actor, the script and the audience. A series of student directed scenes supplemented by attendance at theatre productions.

**THET 441 Screenwriting for TV and Film II (3)** One hour of lecture and three hours of discussion/recitation per week. Prerequisite: THET341. Not open to students who have completed THET427 and THET627. Advanced workshop and seminar for students completing feature length screenplays started in Screenwriting I.

**THET 442 Visual Storytelling (3)** Prerequisite: permission of department. Credit will be granted for only one of the following: THET442 or THET499R. Formerly THET 499R. The basic elements of visual literacy are incorporated, using the camera as a creative tool for constructing stories.

**THET 451 Musical Theatre Workshop I (3)** Prerequisites: audition and permission of department. Development of the ability to move, act and express through the media of lyric and music.

**THET 452 Musical Theatre Workshop II (3)** Prerequisite: Audition and permission of department. Development of the ability to move, act and express through the media of lyric and music from the integrated musicals of the 1960s through the development of concert and rock/pop musicals.

**THET 457 Advanced Lighting Technology (3)** Four hours of lecture per week. Prerequisite: THET114 and THET116; or permission of instructor. Sophomore standing. Technological innovations such as moving lights, color changers, and LED are studied from the lighting designer's perspective. Students will have the opportunity to use the equipment in the lighting lab.

**THET 460 Theatre Management I (3)** Prerequisites: THET110 and THET111 or permission of department. The practical tools of theatre management: production philosophies, selecting and balancing a season, tickets and operations, budgeting, graphic arts production, advertising, publicity and other promotional devices.

**THET 461 Theatre Management II (3)** Prerequisites: THET110, THET111 and THET460; or permission of department. Case studies, discussions, lectures and projects concerning advanced theatre management decision making and administration, including such areas as personnel relations, contract negotiations, theatrical unions, fundraising, touring, audience development and public relations.

**THET 465 History of Fashion for the Theatre (3)** Four hours of lecture per week. Prerequisite: THET116, or permission of instructor. Sophomore standing. A survey of Western clothing from the Ancient Worlds through 20th Century. A discussion of the cultural contexts of various trends in fashion through an examination of art, industry and textiles.

**THET 470 Advanced Stage Craft (3)** Two hours of lecture and two hours of laboratory per week. Prerequisite: THET114 or permission of instructor. Credit will be granted for only one of the following: THET470 or THET499B. Formerly THET 499B. An introduction in technical design and management. Topics include rigging, structural mechanics, and construction in materials other than wood.

**THET 471 Design Studio in Scenery (3)** Prerequisite: THET371 and permission of department. Also offered as THET639. Credit will be granted for only one of the following: THET471 or THET639. Advanced study of scenic design for the theatre. Particular design projects will vary.

**THET 472 Scene Painting (3)** Prerequisites: THET114 or permission of department. Credit will be granted for only one of the following: THET472 or THET473. Formerly THET 473. Scene painting techniques and materials. Three-dimensional realistic scenery and non-realistic two-dimensional projects.

**THET 473 Rendering for the Theatre II (3)** Four hours of laboratory per week. Prerequisite: THET 373 or permission of instructor. Continued study in rendering techniques and graphic skills for theatrical design presentation. Emphasis on style, technique and use of different artistic media.

**THET 474 Stage Management (3)** Prerequisite: Four of the five fundamental courses (THET112, THET113, THET114, THET115, THET116) and permission of instructor. Sophomore standing. Intensive practical study of the techniques and procedures for stage management.

**THET 475 History of Art, Architecture, and Decor for the Theatre (3)** Prerequisite: THET112, THET113, THET114, THET115, and THET116; and permission of department. Also offered as THET670. Credit will be granted for only one of the following: THET475 or THET670. Study of Western art, architecture, and decor and their practical application to theatrical production.

**THET 477 Design Studio in Lighting (3)** Four hours of laboratory per week. Prerequisites: THET377; and permission of department. Also offered as THET659. Credit will be granted for only one of the following: THET477 or THET659. Designed for students who have successfully completed THET377 and wish to further develop their lighting design skills. Emphasis is on theoretical design of productions and realized light lab projects. Particular design projects will vary.

**THET 479 Production Practicum (1-3)** Prerequisite: THET112, THET113, THET114, THET115, and THET116; or permission of department. Repeatable to 6 credits if content differs. Designed to expand students' practical knowledge and skills through working on Department of Theatre productions.

**THET 480 Audio Technology (3)** Two hours of lecture and three hours of laboratory per week. Prerequisite: THET114; or permission of department. First technical course in the installation and operation of professional sound systems. This course explores current standards of both analog and digital audio theory as well as recording and reinforcement techniques.

**THET 481 Theatre Graphics II (3)** One hour of lecture and six hours of laboratory per week. Prerequisites: THET114, THET116, and THET273. Sophomore standing. Study and practical application of computer generated graphical design for use in theatrical production.

**THET 482 Scene Painting II (3)** One hour of lecture and four hours of laboratory per week. Prerequisite: THET472 or permission of instructor. Sophomore standing. Advanced study of theatrical scenic painting.

**THET 483 Design Studio Costume (3)** Four hours of laboratory per week. Prerequisite: THET383 and permission of department. Also offered as THET649. Credit will be granted for only one of the following: THET384, THET483, or THET649. Formerly THET 384. Intermediate and advanced principles of theatrical costume design rendering skills. Emphasis on development of design concept, unity, character statement, and research. Particular design projects will vary.

**THET 486 History of Modern Theory & Performance (3)** Prerequisites: THET488 or THET489 and permission of instructor. Also offered as THET686. Credit will be granted for only one of the following: THET486 or THET686. Modern dramatic and performance theory from realism to the absurd with special emphasis on the European and American avant-garde.

**THET 487 Postmodern Theatre and Performance (3)** Prerequisite: THET488 or THET489; and permission of department. Also offered as THET687. Credit will be granted for only one of the following: THET487, THET497 or THET687. Formerly THET 497. American and European experimental performance since 1960 will be explored. Topics include postmodern performance, political performance, pornography and performance, popular culture and performance, and gender and performance. Topics are treated historically and theoretically. Student-produced performance projects are an important component of the seminar.

**THET 488 Special Topics in Theatre History Before 1800 (3)** Prerequisite: THET112, THET113, THET114, THET115, and THET116. Junior standing. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: THET488 or THET490. Formerly THET 490. Topics in the history of world theatre and performance from the Greeks through 1800.

**THET 489 Special Topics in Theatre History from 1800 to Present (3)** Prerequisite: THET112, THET113, THET114, THET115, and THET116. Junior standing. Repeatable to 6 credits if content differs. Credit will be granted for only one of the following: THET489 or THET491. Formerly THET 491. Topics in the history of world theatre and performance from 1800 to present.

**THET 490 History of Theatre I (3)** Prerequisites: THET110 & THET111; or THET113 & THET115; or permission of department. The history of Western theatre from its origins in classical antiquity through the mid-seventeenth century with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Extensive use of graphic materials, play readings, and production projects.

**THET 491 Theatre History II (3)** Prerequisite: THET110, THET111, and THET490; or permission of department. The history of Western theatre from the late seventeenth century to the late nineteenth century, with emphasis on plays and playwrights, architecture and decor, acting and costuming, and significant personalities. Extensive use of graphic materials, play readings and production projects.

**THET 495 History of Theatrical Theory and Criticism (3)** The development of theatrical theory and criticism from the Greeks to the modern theorists. The philosophical basis of theatre as an art form. Important theorists and the practical application of their theories in either play scripts or theatrical productions. Required attendance at selected live theatre productions.

**THET 496 African-American Women Filmmakers (3)** Also offered as WMST496. Credit will be granted for only one of the following: THET496 or WMST496. Examines the cinematic artistry of African-American women filmmakers and the ways in which these films address the dual and inseparable roles of race and gender.

**THET 497 Non-Traditional Theatre (3)** Seminar exploring American and European experimental performance since 1960. Topics include experimental theatre, performance art, pornography and performance, gender and performance, and popular culture and performance. Topics are treated historically and theoretically. Student-produced performance projects are an important component of the seminar.

**THET 498 Seminar: Theatre History (3)** Three hours of discussion/recitation per week. Prerequisite: THET488 or THET489; and permission of instructor. Senior standing. Repeatable to 6 credits if content differs. Also offered as THET698. Credit will be granted for only one of the following: THET498 or THET698. Studies in theatre history from classical antiquity to the present.

**THET 499 Independent Study (1-3)** Prerequisite: permission of department. Repeatable to 6 credits. An independent study course in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic or costume designs, or a stage production.

## UMEI – Maryland English Institute

**UMEI 001 English as a Foreign Language: Beginning (12)** 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has little or no previous knowledge of English. Focus on the rapid acquisition of the basic features of English grammar and pronunciation and on speaking and understanding American English; reading and writing appropriate to the level will be included. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

**UMEI 002 English as a Foreign Language: Intermediate I (12)** 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has had some previous instruction in English. Emphasis on improving listening and speaking skills, on mastering intermediate grammatical structures, and on expanding vocabulary. Includes practice in reading and writing appropriate to the level. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

**UMEI 003 English as a Foreign Language: Intermediate II (12)** 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has mastered the essential structures of English grammar. Emphasis on improving communicative skills for a wide range of linguistic situations, on rapid expansion of vocabulary, and on improving reading comprehension and basic writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

**UMEI 004 English as a Foreign Language: Intermediate III (12)** 22 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has a good command of the basic features of spoken and written English. Emphasis on refining speaking and listening skills, on improving reading speed and comprehension of academic texts, and on developing writing skills for academic courses. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

**UMEI 005 Advanced English as a Foreign Language (6)** 12 hours of discussion/recitation per week. Semi-intensive course for the nearly proficient non-native speaker of English needing additional language instruction prior to undertaking full-time academic study. Speaking and listening skills; improvement of reading speed and comprehension; and development of writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

**UMEI 006 English Pronunciation (2)** Three hours of discussion/recitation per week. Individualized class for the non-native speaker of English. Diagnosis of individual pronunciation problems. Practice in the correct pronunciation of English sounds and improvement of ability to speak English with proper stress and intonation patterns. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

**UMEI 007 Advanced Writing for International Students (3)** Four hours of discussion/recitation per week. Open to graduate students only. Special fee. A writing skills course for the non-native speaker of English with a good command of spoken English. This course does not carry credit towards any degree at the University and does not count in the retention plan.

**UMEI 008 Advanced Oral Communication Skills (2)** Four hours of discussion/recitation per week. Prerequisite: permission of department. For advanced non-native speakers of English. Practice in speaking skills relevant to the academic situation. Improvement of speaking skills for various classroom activities such as participating in discussions, making appointments with professors, asking for information and presenting oral reports. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

## UNIV – University Courses

**UNIV 099 Internship Seminar ( )** Prerequisite: Minimum 2.0 GPA (undergraduates), 3.0 GPA (graduate students); approval of Career Center. Approval of instructor. Complements students' supervised work experiences. Open to all majors; all class levels. Involves exploring career options, developing professional work skills, examining the relationship between internship and academic coursework. Course may be repeated.

## 246 Approved Courses

**UNIV 100 The Student in the University (1)** Two hours of lecture per week for 12 weeks. Not open to students who have completed EDCP1080. Credit will be granted for only one of the following: EDCP1080 or UNIV100. Formerly EDCP 1080. Introduces students to University life. In a small classroom setting, students will explore how to successfully bridge the gap between high school and college. Study skills, career decision-making, and student development processes will be explored.

**UNIV 101 The Student in the University and Introduction to Computer Resources (2)** Two hours of lecture per week. Introduces students to University life and current computer resources. In a small classroom setting, students will explore the world of higher education and current technological advances available to them. Additionally students will explore current resources both internal and external to the University, and how to utilize the World Wide Web as a research tool.

**UNIV 105 Pre-Medical and Allied Health Colloquium-I (1)** Credit will be granted for only one of the following: UNIV 100 or UNIV 105. Introduces students to University life and to the pre-medical and healthcare fields.

**UNIV 108 Markets and Society Colloquium (1)** Restricted to students in the Markets and Society program. Provides students with information about the world of business careers. Students hear from a variety of guest speakers, including faculty and professionals from the business community. Students engage in the career exploration process, including self-assessment, information gathering, decision making, and goal setting. Restricted to students in the Markets and Society program.

**UNIV 188 Introduction to Global Communities (1)** Prerequisite: Admittance to the Global Communities Program. Repeatable to 2 credits if content differs. Introduction to Global Communities students to explore culture, identity, value construction and contemporary issues in global society.

**UNIV 189 Global Communities Colloquium II (1)** Prerequisite: Admittance to the Global Communities Program. Repeatable to 2 credits if content differs. Students acquire intercultural understanding and competency for functioning both personally and professionally in an international environment.

**UNIV 205 Pre-medical and Allied Health Colloquium II (1)** Prerequisite: UNIV105 and must be in the PreMed/Allied Health learning community; or permission of department. Second semester colloquium of the PreMedical and Allied Health Learning Community. Students participate in interactive activities and lectures, meet guest speakers with expertise in healthcare, participate in field trips and in experiential opportunities.

**UNIV 288 Global Communities Colloquium III (1-3)** Prerequisite: Admittance to Global Communities; UNIV188 and UNIV189, or permission of instructor. Repeatable to 3 credits if content differs. Special topics course (Research, Service-Learning, Practicum or Internship).

**UNIV 289 Global Communities Colloquium IV (1-3)** Prerequisite: Admittance to Global Communities; UNIV188, UNIV189, UNIV288 or permission of instructor. Repeatable to 3 credits if content differs. Designed to prepare students for personal and professional life in a global society.

**UNIV 325 Beyond the Classroom Seminar I (2)** Prerequisite: For students in the Beyond the Classroom (BTC) living and learning program. Development of effective written and oral communication skills for a variety of constituents. Development of civic engagement principles. Students prepare professional portfolios in preparation of a semester-long internship.

**UNIV 348 Federal Semester Seminar (3)** Prerequisite: permission of Office of Undergraduate Studies. For Federal Semester participants only. Junior standing. Repeatable to 6 credits if content differs. This topical seminar will approach Federal policy formation through a combination of framework-based and content-specific considerations. Content and themes will vary. The Federal Semester is an offering of the Office of Undergraduate Studies in conjunction with several academic colleges and the University Career Center. Further information is available at <http://www.federalsemester.umd.edu/>

**UNIV 349 Federal Semester Experiential Learning (1-6)** Prerequisite: UNIV348 and learning proposal approved by the Office of Undergraduate Studies and student's internship sponsor. For Federal Semester participants only. Junior standing. Repeatable to 6 credits if content differs. This is the internship component of the Federal Semester program, an offering of the Office of Undergraduate Studies in conjunction with several academic colleges and the University Career Center. Further information is available at <http://www.federalsemester.umd.edu/>

**UNIV 399 Experiential Learning (1-3)** Prerequisite: learning proposal approved by the Office of Undergraduate Studies and student's internship sponsor. Junior standing. Repeatable to 6 credits if content differs. Experiential learning offered in conjunction with certain designated Office of Undergraduate Studies programs.

### URSP – Urban Studies and Planning

**URSP 100 Challenge of the Cities (3)** Formerly URBS 100. Contemporary urban patterns, trends and problems. Major urban issues, such as: population change, the economy, land use, housing, neighborhood development, fiscal and unemployment crises, and social, environmental, and political controversies of metropolitan areas. International urbanization patterns and policies.

**URSP 118 Selected Topics in Urban Planning (3)** Repeatable to 9 credits if content differs. Selected Topic courses address particular issues relating to urban studies and planning. They are focused on specific areas of theory and practice as they relate to the study of urban areas.

**URSP 320 Planning and the Contemporary City (3)** Prerequisite: URSP240. Credit will be granted for only one of the following: URSP320, URBS220, or URBS320. Formerly URBS 320. A survey of major social, economic, technological and environmental factors influencing the current form of the United States city and the well being of its inhabitants. Emphasis on understanding ways of analyzing urban issues and evaluating alternative planning and policy options.

**URSP 372 Diversity and the City (3)** Exploration of the different needs of diverse economic, racial/ethnic, and gender groups that live and work in cities, the historical background of differences, the impact of societal structures and group cultures, and how public and private policies do and can affect different groups.

**URSP 399 Independent Study (1-3)** Junior standing. Repeatable to 6 credits if content differs. Formerly URBS 399. Directed research and study of selected aspects of urban affairs.

**URSP 410 The Development of the American City (3)** Prerequisite: permission of department. Formerly URBS 410. History of urban policy and city planning in the U.S. Response to changing definitions of urban problems and political issues. Changes in technology, interests, and theories of planners and policy makers.

**URSP 488 Selected Topics in Urban Studies and Planning (1-3)** Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly URBS 488. Topics of special interest to advanced urban studies students.

### WMST – Women's Studies

**WMST 200 Introduction to Women's Studies: Women and Society (3)** An interdisciplinary study of the status, roles, and experiences of women in society. Sources from a variety of fields such as literature, psychology, history, and anthropology, focusing on the writings of women.

**WMST 210 Women in America to 1880 (3)** Also offered as HIST210. Credit will be granted for only one of the following: WMST210 or HIST210. An examination of the economic, family, and political roles of colonial, slave, immigrant and frontier women in America from pre-industrial colonial period through the early stages of nineteenth century industrialization and urbanization.

**WMST 211 Women in America Since 1880 (3)** Also offered as HIST211. Credit will be granted for only one of the following: WMST211 or HIST211. An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles, including those for women's rights, birth control, and civil rights.

**WMST 212 Women in Western Europe 1750-Present (3)** Also offered as HIST212. Credit will be granted for only one of the following: WMST212 or HIST212. An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

**WMST 241 Women Writers of French Expression in Translation (3)** Also offered as FREN241. Credit will be granted for only one of the following: WMST241 or FREN241. Works and ideas of 20th century women writers of French in Canada, Africa, the Caribbean, and France. Taught in English.

**WMST 250 Introduction to Women's Studies: Women, Art and Culture (3)** An examination of women's creative powers as expressed in selected examples of music, film, art, drama, poetry, fiction, and other literature. Explores women's creativity in relation to families, religion, education, ethnicity, class, sexuality, and within a cultural tradition shaped by women.

**WMST 255 Introduction to Literature by Women (3)** Also offered as ENGL250. Credit will be granted for only one of the following: WMST255 or ENGL250. Images of women in literature by and about women.

**WMST 263 Introduction to Black Women's Studies (3)** Freshman standing. Also offered as AASP298S. Credit will be granted for only one of the following: WMST298A or AASP298S. Formerly WMST 298A. Interdisciplinary exploration of Black women, culture and society in the United States. Drawn primarily from the social sciences and history with complementary material from literature and the arts.

**WMST 267 Introduction to Black Women's Cultural Studies (3)** Credit will be granted for only one of the following: WMST267 or WMST298A. Formerly WMST 298A. An introduction to black women's cultural production and to an understanding of how the social norms and ideals about women within black communities and in the larger society have shaped black women's own self-perceptions and behaviors and thus their cultural production.

**WMST 275 World Literature by Women (3)** Also offered as CMLT275. Credit will be granted for only one of the following: WMST275 or CMLT275. Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.

**WMST 281 Women in German Literature and Society (3)** Also offered as GERM281. Credit will be granted for only one of the following: WMST281 or GERM281. A study of changing literary images and social roles of women from the beginning of the 19th century to the present.

**WMST 298 Special Topics in Women's Studies (1-3)** Repeatable to 6 credits if content differs.

**WMST 300 Feminist Reconceptualizations of Knowledge (3)** Prerequisite: permission of department. For WMST majors only. An examination of how the interdisciplinary study of women and gender has generated new questions, challenged traditional methodologies and offered insights on the ways we come to learn, know, and teach. Explores the impact of feminist thinking on various disciplines.

**WMST 314 Black Women in United States History (3)** Sophomore standing. Also offered as AASP313. Credit will be granted for only one of the following: AASP498W, AASP313, WMST314 or WMST498N. Formerly WMST 498N. Black American women's history from slavery to the present. Focused on gaining a fuller understanding of the effect of race, class and gender on the life cycles and multiple roles of Black women as mothers, daughters, wives, workers and social-change agents.

**WMST 320 Women in Classical Antiquity (3)** Also offered as CLAS320. Credit will be granted for only one of the following: WMST320 or CLAS320. A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal, and artistic evidence; special emphasis in women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

**WMST 325 The Sociology of Gender (3)** Prerequisite: Three credits of sociology. Also offered as SOCY325. Credit will be granted for only one of the following: WMST325 or SOCY325. Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.

**WMST 326 Biology of Reproduction (3)** Prerequisite: BSCI105 or permission of department. Also offered as BSCI342. Credit will be granted for only one of the following: WMST326 or BSCI342. The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior and menopause.

**WMST 336 Psychology of Women (3)** Prerequisite: PSYC100. Also offered as PSYC336. Credit will be granted for only one of the following: WMST336 or PSYC336. A study of the biology, life span development, socialization, personality, mental health, and special issues of women.

**WMST 348 Literary Works by Women (3)** Prerequisite: Two lower-level English courses, at least one in literature; or permission of department. Repeatable to 6 credits if content differs. Also offered as ENGL348. Credit will be granted for only one of the following: WMST348 or ENGL348. The context, form, style and meaning of literary works by women.

**WMST 350 Feminist Pedagogy (6)** Prerequisite: permission of department. General application of feminist methodology to teaching and communication skills, teaching strategies, motivation, classroom dynamics and knowledge of students' development and learning styles.

**WMST 360 Caribbean Women (3)** An interdisciplinary analysis of the lives and experiences of women across the Caribbean region, through an examination of their roles in individual, national, social and cultural formations. Special emphasis on contemporary women's issues and organizations.

**WMST 370 Black Feminist Thought (3)** Prerequisite: One course in WMST or AASP. Examines the ideas, words and actions of Black women writers, speakers, artists, and activists in the United States.

**WMST 380 Feminist Analysis of the Workplace (6)** Prerequisite: permission of department. An examination of the world of work from a feminist perspective through theory and experience. Designed to provide students with experiences in work situations that have social, economic, educational and/or political impact on women's lives. Students will develop the skill to theoretically analyze their experience and practically implement feminist models in the workplace.

**WMST 386 Experiential Learning (3-6)** Prerequisite: Learning Proposal approved by the Office of Experiential Learning Programs, faculty sponsor, and student's internship sponsor. Junior standing.

**WMST 400 Theories of Feminism (3)** Prerequisite: one course in WMST or a course cross-listed with a WMST course. A study of the multiplicity of feminist theories which have been developed to explain women's position in the family, the workplace, and society. Major feminist writings are considered in the context of their historical moment and in the context of the intellectual traditions to which they relate.

**WMST 408 Literature by Women Before 1800 (3)** Prerequisite: Two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as ENGL408. Credit will be granted for only one of the following: WMST408 or ENGL408. Selected writings by women in the medieval and early modern era.

**WMST 410 Women of the African Diaspora (3)** Explores the lives, experiences, and cultures of women of Africa and the African diaspora—African-America, the Caribbean, and Afro-Latin America. A variety of resources and materials will be used providing a distinctive interdisciplinary perspective.

**WMST 420 Asian American Women: The Social Construction of Gender (3)** Also offered as AAST420. Credit will be granted for only one of the following: AAST420 or WMST420. Examines the intersection of gender, race and class as it relates to Asian American women in the United States; how institutionalized cultural and social statuses of gender, race, ethnicity and social class, produce and reproduce inequality within the lives of Asian American women.

**WMST 425 Gender Roles and Social Institutions (3)** Also offered as SOCY425. Credit will be granted for only one of the following: SOCY425 or WMST425. Relationship between gender roles and the structure of one or more social institutions (e.g., the economy, the family, the political system, religion, education). The incorporation of gender roles into social institutions; perpetuation or transformation of sex roles by social institutions; how changing gender roles affect social institutions.

**WMST 430 Gender Issues in Families (3)** Prerequisite: SOCY100, SOCY105, or PSYC100. Also offered as FMST430. Credit will be granted for only one of the following: WMST430 or FMST430. The development of historical, cultural, developmental and psychosocial aspects of masculinity and femininity with the context of contemporary families and the implications for interpersonal relations.

**WMST 436 The Legal Status of Women (3)** Prerequisite: GVPT231. Also offered as GVPT436. Credit will be granted for only one of the following: WMST436 or GVPT436. An examination of judicial interpretation and application of common, statutory, and constitutional law as these affect the status of women in American society.

**WMST 444 Feminist Critical Theory (3)** Prerequisite: ENGL250, WMST200 or WMST250. Also offered as ENGL444. Credit will be granted for only one of the following: WMST444 or ENGL444. Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity.

**WMST 448 Literature by Women of Color (3)** Prerequisite: Two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as ENGL448. Credit will be granted for only one of the following: WMST448 or ENGL448. Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.

**WMST 452 Women in the Media (3)** Also offered as JOUR452. Credit will be granted for only one of the following: WMST452 or JOUR452. Participation and portrayal of women in the mass media from colonial to contemporary times.

**WMST 453 Victorian Women in England, France, and the United States (3)** Also offered as HIST493. Credit will be granted for only one of the following: HIST493 or WMST453. Examines the lives of middle and upper-class women in England, France, and the United States during the Victorian era. Topics include gender roles, work, domesticity, marriage, sexuality, double standards and women's rights.

**WMST 454 Women in Africa (3)** Also offered as HIST494. Credit will be granted for only one of the following: HIST494 or WMST454. The place of women in African societies: the role and function of families; institutions such as marriage, birthing, and child rearing; ritual markers in women's lives; women in the workplace; women's associates; women's health issues; measures designed to control women's behavior; women and development.

**WMST 455 Women in Medieval Culture and Society (3)** Also offered as HIST495. Credit will be granted for only one of the following: HIST495 or WMST455. Medieval women's identity and cultural roles: the condition, rank and rights of medieval women; their access to power; a study of women's writings and the constraints of social constructs upon the female authorial voice; and contemporary assumptions about women.

**WMST 457 Redefining Gender in the U.S., 1880-1935 (3)** Also offered as HIST433. Credit will be granted for only one of the following: HIST433 or WMST457. Exploring changing perceptions of gender in the U.S., 1880-1935, and the impact of those changes on the day to day lives of men and women.

**WMST 458 Literature by Women After 1800 (3)** Prerequisite: Two English courses in literature or permission of department. Repeatable to 9 credits if content differs. Also offered as ENGL458. Credit will be granted for only one of the following: WMST458 or ENGL458. Selected writings by women after 1800.

**WMST 466 Feminist Perspectives on Women in Art (3)** Also offered as ARTH466. Credit will be granted for only one of the following: WMST466 or ARTH466. Principal focus on European and American women artists of the 19th and 20th centuries, in the context of the new scholarship on women.

**WMST 468 Feminist Cultural Studies (3)** Repeatable to 9 credits if content differs. Each version of this course focuses on one or several forms of popular culture—such as TV, music, film, cyberculture, or genre fiction (for example, science fiction)—and demonstrates how feminists value, critique and explain such forms. Tools of feminist cultural studies include economic and social analyses of power, race, sexuality, gender, class, nationality, religion, technology, and globalization processes.

**WMST 471 Women's Health (3)** Also offered as HLTH471. Credit will be granted for only one of the following: WMST471 or HLTH471. The women's health movement from the perspective of consumerism and feminism. The physician-patient relationship in the gynecological and other medical settings. The gynecological exam, gynecological problems, contraception, abortion, pregnancy, breast and cervical cancer and surgical procedures. Psychological aspects of gynecological concerns.

**WMST 488 Senior Seminar (3)** Prerequisite: permission of department. Repeatable to 9 credits if content differs. Seminar for advanced majors in women's studies or other students with appropriate preparation. Interdisciplinary topics will vary each semester.

**WMST 493 Jewish Women in International Perspective (3)** Prerequisite: One course in Women's Studies, preferably WMST200 or WMST250. Also offered as JWST493. Credit will be granted for only one of the following: WMST493 or JWST492 or JWST493. Using memoirs, essays, poetry, short stories, films, music and the visual arts, course will interrogate what it means/has meant to define oneself as a Jewish woman across lines of difference. Focus is largely on the secular dimensions of Jewish women's lives but will also explore the implications of Jewish law and religious practices for Jewish women. Our perspective will be international, including Ashkenazi and Sephardi women.

**WMST 494 Lesbian Communities and Differences (3)** Prerequisite: One course in Women's Studies, preferably WMST200 or WMST250. The meanings of lesbian communities across many lines of difference. Using lesbian-feminists of the 1970s as a starting point, we will look both back and forward in history, tracing changes and exploring the meanings of these in their social and historical contexts.

**WMST 496 African-American Women Filmmakers (3)** Also offered as THET496. Credit will be granted for only one of the following: WMST496 or THET496. Examines the cinematic artistry of African-American women filmmakers and the ways in which these films address the dual and inseparable roles of race and gender.

**WMST 498 Advanced Special Topics in Women's Studies (3)** Prerequisite: permission of department. Repeatable to 9 credits if content differs.

**WMST 499 Independent Study (1-3)** Prerequisite: One course in women's studies courses and permission of department. Research and writing or specific readings on a topic selected by the student and supervised by a faculty member of the Women's Studies Department.

## WRLD – World Courses

**WRLD 125 The Creative Drive: A World Course: Creativity in Music, Architecture and Science (3)** Two hours of lecture and one hour of discussion/recitation per week. Credit will be granted for only one of the following: UNIV118A, ARHU125 or WRLD125. Formerly ARHU 125. Interdisciplinary course team taught by faculty from music, architecture, and mathematics. Study of great creative works and creative personalities in music, architecture and science.

**WRLD 135 To Stem the Flow: The Nile, Technology, Politics and the Environment (3)** Two hours of lecture and one hour of discussion/recitation per week. Students may count this course for CORE in ONE of three areas: Life Sciences, non-lab (LS) Physical Sciences, non-lab (PS) Social or Political History (SH). Credit will be granted for only one of the following: UNIV138A or WRLD135. Formerly UNIV 138A. This interdisciplinary, team-taught course looks at the interplay of engineering, the environment, biological communities, and politics from the historical context of Egyptian development of the Nile River Valley and the Aswan High Dam.

**WRLD 138 Topics in Cultural Perspectives (3)** Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 6 credits if content differs. Interdisciplinary course team taught by faculty from different disciplines. Comparative study of cultural perspectives across major topics and issues of world importance.

**WRLD 148 Topics in Cultural Perspectives (3)** Two hours of lecture and one hour of discussion/recitation per week. Formerly UNIV 148. Interdisciplinary course team taught by faculty from different disciplines. Comparative study of cultural perspectives across major topics and issues of world importance.

**WRLD 168 Topics in Ethics (3)** Two hours of lecture and one hour of discussion/recitation per week. Repeatable to 6 credits if content differs. Formerly UNIV 168. Interdisciplinary course team taught by faculty from different disciplines. Comparative perspectives on ethical concerns across major topics and issues of world importance.

**WRLD 235 The Power of Water: Politics, Technology, and Development of (3)** the Mekong River Two hours of lecture plus a 75 minute learning laboratory each week. An interdisciplinary course that looks at the politics, technology, environmental, and cultural issues of modern development of the Mekong River from China to Vietnam.

## CHAPTER 9

# University of Maryland Administrators and Faculty

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**UNIVERSITY OF MARYLAND, COLLEGE PARK, AND UNIVERSITY SYSTEM OF MARYLAND OFFICIALS**


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**University of Maryland, College Park**

C. D. Mote, Jr., President  
 William W. Destler, Senior Vice President for Academic Affairs and Provost  
 Linda M. Clement, Vice President for Student Affairs  
 Jacques Gansler, Vice President for Research  
 Jeffrey C. Huskamp, Vice President and Chief Information Officer  
 John Porcari, Vice President for Administrative Affairs  
 Brodie Remington, Vice President for University Relations

**University System of Maryland**

William "Brit" Kirwan, Chancellor  
 Irwin L. Goldstein, Vice Chancellor for Academic Affairs  
 Joseph F. Vivona, Vice Chancellor for Administration and Finance  
 Leonard Raley, Vice Chancellor for Advancement and President,  
 University System of Maryland Foundation

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**Board of Regents (as of July 1, 2006)**

|                        |                                  |
|------------------------|----------------------------------|
| David H. Nevins, Chair | Clifford M. Kendall              |
| James Brady            | Cheryl Krongard                  |
| Thomas B. Finan, Jr.   | Marvin Mandel                    |
| Patricia S. Florestano | Robert L. Mitchell               |
| R. Michael Gill        | A. Dwight Pettit                 |
| Alicia Coro Hoffman    | Robert L. Pevenstein             |
| Richard E. Hug         | Lewis R. Riley, ex officio       |
| Orlan M. Johnson       | Caitlin Heideman, Student Regent |
| Francis X. Kelly, Jr.  |                                  |

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**UNIVERSITY OF MARYLAND, COLLEGE PARK, FACULTY**


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**A'Hearn, Michael F.**

Distinguished University Professor, Astronomy; B.S., Boston College, 1961; Ph.D., University of Wisconsin-Madison, 1966.

**Abbott-Jamieson, Susan**

Adjunct Associate Professor, Anthropology; B.A., Idaho State University, 1969; M.A., University of North Carolina-Chapel Hill, 1971; Ph.D., 1974.

**Abed, Eyad H.**

Professor & Director, Institute for Systems Research; Professor, Electrical & Computer Engineering; B.S., Massachusetts Institute of Technology, 1979; M.S., University of California-Berkeley, 1981; Ph.D., 1982.

**Abels, Eileen G.**

Associate Professor, College of Information Studies; Affiliate Associate Professor, Decision & Information Technology; B.A., Clark College, 1975; M.L.S., University of Maryland-College Park, 1977; Ph.D., University of California-Los Angeles, 1985.

**Abshire, Pamela A.**

Assistant Professor, Electrical & Computer Engineering; Assistant Professor, Institute for Systems Research; B.S., California Institute of Technology, 1992; M.S., Johns Hopkins University, 1997; Ph.D., 2001.

**Adams-Gaston, Javaune M.**

Affiliate Assistant Professor, Counseling & Personnel Services; B.A., University of Dubuque, 1978; M.A., Loras College, 1980; Ph.D., Iowa State University, 1983.

**Adams, Aubrey**

Lecturer, School of Music.

**Adams, Jeffrey D.**

Professor, Mathematics; B.A., Johns Hopkins University, 1977; Ph.D., Yale University, 1981.

**Adams, John Q.**

Professor Emeritus, Economics; B.A., Oberlin College, 1960; Ph.D., University of Texas-Austin, 1966.

**Adams, Lowell W.**

Adjunct Associate Professor, Biological Resources Engineering; B.S., Virginia Polytechnic Institute & State University, 1968; M.S., Ohio State University-Columbus, 1973; Ph.D., 1976.

**Adams, William W.**

Professor Emeritus, Mathematics; B.A., University of California-Los Angeles, 1959; Ph.D., Columbia University, 1964.

**Adkins, Elisabeth**

Lecturer, School of Music; B.Mus., University of North Texas, 1978; M.Mus., Yale University, 1980; M.M.A., 1981; D.M.A., 1987.

**Adomaitis, Raymond A.**

Associate Professor & Acting Chair, Chemical & Biomolecular Engineering; Associate Professor, Institute for Systems Research; B.S., Illinois Institute of Technology, 1984; Ph.D., 1988.

**Afflerbach, Peter P.**

Professor, Curriculum & Instruction; B.A., State University of New York-Albany, 1978; M.S., 1979; Ph.D., 1985.

**Agar, Michael H.**

Professor Emeritus, Anthropology; A.B., Stanford University, 1967; Ph.D., University of California-Berkeley, 1971.

**Agarwal, Ritu**

Professor, Robert H. Smith School of Business; B.A., University of Delhi, 1982; M.B.A., Indian Institute of Management, Calcutta, 1984; Ph.D., Syracuse University, 1988; M.S., 1988.

**Aggour, Mohamed Sherif**

Professor, Civil & Environmental Engineering; B.S., Cairo University, 1964; M.S., 1966; Ph.D., University of Washington, 1972.

**Agrawala, Ashok K.**

Professor, Computer Science; Professor, Institute for Advanced Computer Studies; Affiliate Professor, Electrical & Computer Engineering; B.S., Agra University, 1960; B.E., Indian Institute of Science-Bangalore, 1963; M.Eng., 1965; Ph.D., Harvard University, 1970.

**Aguilar-Mora, Jorge**

Professor, School of Languages, Literatures, and Cultures; Distinguished Scholar-Teacher; B.A., Universidad Nacional de Mexico, 1966; Ph.D., El Colegio de Mexico, 1976.

**Ahmad, Imad**

Lecturer, Honors Program; Ph.D., University of Arizona, 1970; B.A., Harvard University, 1975.

**Ahmed, Syed Neyaz**

Lecturer, Finance; B.S., University of Peshawar, 1976; M.S., University of Maryland-College Park, 1987; M.S., George Washington University, 1995.

**Ahrens, Richard A.**

Professor Emeritus, Nutrition and Food Science; B.S., University of Wisconsin-Madison, 1958; Ph.D., University of California-Davis, 1963.

**Aiello, Elaine L.**

Lecturer, Special Education; B.S., Gallaudet College, 1966; M.A., McDaniel College, 1975.

**Ainane, Sami**

Director, Mechanical Engineering; B.S., University of Grenoble, 1979; M.S., University of Maryland-College Park, 1983; Ph.D., 1989.

**Akin, David L.**

Associate Professor, Aerospace Engineering; Affiliate Associate Professor, Institute for Systems Research; S.B., Massachusetts Institute of Technology, 1974; S.M., 1975; Sc.D., 1981.

**Al-Sheikhly, Mohammad I.**

Professor, Materials Science & Engineering; Affiliate Associate Professor, Chemical & Biomolecular Engineering; B.Sc., University of Baghdad, 1974; Ph.D., University of Newcastle, 1981.

**Alberini, Anna**

Associate Professor, Agricultural & Resource Economics; B.A., University of Venice, 1987; M.A., University of California-San Diego, 1989; Ph.D., 1992.

**Aldoory, Linda**

Associate Professor, Communication; Affiliate Associate Professor, Women's Studies; B.A., George Washington University, 1988; M.A., University of Texas-Austin, 1991; Ph.D., Syracuse University, 1998.

**Alexander, James C.**

Professor Emeritus, Mathematics; B.A., Johns Hopkins University, 1964; Ph.D., 1968.

**Alexander, Millard H.**

Distinguished University Professor, Chemistry & Biochemistry; Distinguished University Professor, Institute for Physical Science & Technology; A.B., Harvard College, 1964; Ph.D., University of Paris, 1967.

**Alexander, Patricia A.**

Professor, Human Development; Distinguished Scholar-Teacher; B.A., Bethel College-McKenzie, 1970; M.Ed., James Madison University, 1979; Ph.D., University of Maryland-College Park, 1981.

**Alford, Charles F.**

Professor, Government & Politics; Distinguished Scholar-Teacher; B.A., Austin College, 1969; M.A., University of Texas-Austin, 1971; Ph.D., 1979.

**Allewell, Norma M.**

Professor & Dean, College of Chemical & Life Sciences; Professor, Chemistry & Biochemistry; B.S., McMaster University-Hamilton, 1965; Ph.D., Yale University, 1969.

**Alley, Carroll O., Jr.**

Professor, Physics; B.S., University of Richmond, 1948; M.A., Princeton University, 1951; Ph.D., 1962.

**Allocca, Nicholas Michael**

Lecturer, English; B.S., University of Maryland-College Park, 1986; M.F.A., 1994.

**Almon, Clopper**

Professor Emeritus, Economics; B.A., Vanderbilt University, 1956; Ph.D., Harvard University, 1962.

**Aloimonos, John**

Professor, Computer Science; Professor, Institute for Advanced Computer Studies; B.S., University of Athens-Greece, 1981; M.S., University of Rochester, 1984; Ph.D., 1987.

**Alperovitz, Gar**

Research Professor, Government & Politics; B.S., University of Wisconsin, 1959; M.A., University of California-Berkeley, 1960; Ph.D., University of Cambridge, 1964.

**Alt, Francis B.**

Associate Professor, Robert H. Smith School of Business; B.S.E., Johns Hopkins University, 1967; M.S., Georgia Institute of Technology, 1973; Ph.D., 1977.

**Altschul, Stephen F.**

Adjunct Professor, Institute for Physical Science & Technology; A.B., Harvard College, 1979; Ph.D., Massachusetts Institute of Technology, 1987.

**Amado, Alfred**

Assistant Professor, Counseling & Personnel Services; B.S., University of Florida, 1995; Ph.D., Texas A&M University-College Station, 2003.

**Ambacher, Bruce I.**

Lecturer, College of Information Studies; B.A., Pennsylvania State University-University Park, 1965; M.A., 1967; Ph.D., Temple University, 1971.

**Amde, Amde M.**

Professor, Civil & Environmental Engineering; B.E.S., Johns Hopkins University, 1970; M.S., University of California-Berkeley, 1971; Ph.D., State University of New York-Buffalo, 1976.

**Amershek, Kathleen G.**

Associate Professor Emerita, Curriculum & Instruction; B.S., Indiana State College-Pennsylvania, 1951; M.Ed., Pennsylvania State University, 1957; Ph.D., University of Minnesota, 1966.

**Ames, Frank A.**

Lecturer, School of Music; B.Mus., University of Rochester, 1964; M.F.A., Carnegie-Mellon University, 1966.

**Ammon, Herman L.**

Professor, Chemistry & Biochemistry; Sc.B., Brown University, 1958; Ph.D., University of Washington, 1963.

**Amodeo, Stefania R.**

Lecturer, School of Languages, Literatures, and Cultures; Laurea, University of Genoa, 1964; M.A., Harvard University, 1992.

**Anand, Davinder K.**

Professor Emeritus, Mechanical Engineering; B.S., George Washington University, 1959; M.S., 1961; Ph.D., 1965.

**Anandalingam, Gnanalingam**

Professor, Robert H. Smith School of Business; Professor, Institute for Systems Research; B.A., University of Cambridge, 1975; M.S., Harvard University, 1977; Ph.D., 1991.

**Anastos, George**

Professor Emeritus, Biology; B.S., University of Akron, 1942; M.A., Harvard University, 1947; Ph.D., 1949.

**Anderson, Amel**

Assistant Dean, College of Chemical & Life Sciences; B.S., Jackson State University, 1962; M.S., University of Houston, 1969; Ed.D., Virginia Polytechnic Institute & State University, 1976.

**Anderson, Elaine A.**

Professor, Family Studies; B.S., University of Nebraska-Lincoln, 1973; M.S., Pennsylvania State University-University Park, 1975; Ph.D., 1979.

**Anderson, James Robert**

Professor, Physics; B.S., Iowa State University, 1955; Ph.D., 1967.

**Anderson, John D.**

Professor Emeritus, Aerospace Engineering; Distinguished Scholar-Teacher; B.S., University of Florida, 1959; Ph.D., Ohio State University-Columbus, 1966.

**Anderson, Nancy S.**

Professor Emerita, Psychology; B.A., University of Colorado-Boulder, 1952; M.A., Ohio State University-Columbus, 1953; Ph.D., 1956.

**Andrews, David L.**

Associate Professor, Kinesiology; B.A., University of Exeter, 1985; M.S., University of Illinois-Urbana/Champaign, 1991; Ph.D., 1993.

**Andrews, J. Edward, Jr.**

Visiting Professor, Education Policy and Leadership; B.S., Frostburg State University, 1957; M.Ed., University of Maryland-College Park, 1961; Ed.D., 1968.

**Angel, C. Roselina**

Associate Professor, Animal & Avian Sciences; Affiliate Assistant Professor, Veterinary Medicine Program; B.S., Iowa State University, 1984; M.S., 1987; Ph.D., 1990.

**Angeletti, Kathleen Ann**

Assistant Dean, Student Services; B.S., University of Maryland-College Park, 1982; M.A., 1989; Ph.D., 2000.

**Anisimov, Mikhail A.**

Professor, Chemical & Biomolecular Engineering; Professor, Institute for Physical Science & Technology; Engineer Diploma, Grozny Petroleum Institute, 1964; Ph.D., Moscow State University, 1969.

**Ankem, Sreeramamurthy**

Associate Professor, Materials Science & Engineering; B.Eng., K.R. Engineering College-University of Mysore, 1972; M.Eng., Indian Institute of Science-Bangalore, 1974; Ph.D., Polytechnic Institute of New York, 1980.

**Anlage, Steven**

Professor, Physics; Professor, Physics-Superconductivity; Affiliate Professor, Electrical & Computer Engineering; Affiliated with Center for Superconductivity Research; B.S., Rensselaer Polytechnic Institute, 1982; M.S., California Institute of Technology, 1984; Ph.D., 1988.

**Annand, Viki S.**

Assistant Dean, College of Health & Human Performance; B.S., Pennsylvania State University-University Park, 1969; M.Ed., George Washington University, 1973; Ed.D., Temple University, 1990.

**Antman, Stuart S.**

Distinguished University Professor, Mathematics; Distinguished University Professor, Institute for Physical Science & Technology; Affiliate Professor, Institute for Systems Research; B.S., Rensselaer Polytechnic Institute, 1961; M.S., University of Minnesota-Twin Cities, 1963; Ph.D., 1965.

**Antonisse, Margaret**

Lecturer, Hearing & Speech Sciences; B.A., Lafayette College, 1973; A.M.L.S., University of Michigan-Ann Arbor, 1976; Ph.D., University of Maryland-College Park, 2000.

**Antonsen, Thomas M., Jr.**

Professor, Electrical & Computer Engineering; Professor, Physics; Affiliate Professor, Institute for Research in Electronics & Applied Physics; B.S., Cornell University, 1973; M.S., 1976; Ph.D., 1977.

**Arbaugh, William**

Associate Professor, Computer Science; Associate Professor, Institute for Advanced Computer Studies; B.S., U.S. Military Academy, 1984; M.S., Columbia University, 1985; Ph.D., University of Pennsylvania, 1999.

**Armstrong, Earlene**

Associate Professor, Entomology; B.S., North Carolina Central University, 1969; M.S., 1970; Ph.D., Cornell University, 1975.

**Armstrong, Ronald W.**

Professor Emeritus, Mechanical Engineering; B.E.S., Johns Hopkins University, 1955; M.Sc., Carnegie-Mellon University, 1957; Ph.D., 1958.

**Arnold, Elizabeth**

Assistant Professor, English; B.A., Oberlin College, 1981; M.A., University of Chicago, 1984; Ph.D., 1990; M.F.A., Warren Wilson College, 1996.

**Arnold, Mark Douglas**

Lecturer, English; B.A., University of Maryland-College Park, 1985; Ph.D., 1995.

**Arnot, Michelle**

Lecturer, Biology; B.S., Queen's University at Kingston, 1993; Ph.D., University of Alberta, Edmonton, Alberta, 1998.

**Arsenault, Richard J.**

Professor Emeritus, Materials Science & Engineering; B.S., Michigan Technological University, 1957; Ph.D., Northwestern University, 1962.

**Aruoba, Sadik Boragan**

Assistant Professor, Economics; B.A., Bogazici University, 1999; M.A., University of Pennsylvania, 2002; Ph.D., 2004.

**Ashley, David**

Lecturer, Marketing; B.A., University of North Carolina-Chapel Hill, 1990; M.B.A., Univ of New Mexico-Valencia, 1996.

**Assad, Arjang A.**

Professor & Associate Dean, Robert H. Smith School of Business; B.S., Massachusetts Institute of Technology, 1971; M.S., 1976; Ph.D., 1978.

**Ater, Renee D.**

Assistant Professor, Art History & Archaeology; B.A., Oberlin College, 1987; M.A., University of Maryland-College Park, 1993; Ph.D., 2000.

**Atkins, Ella M.**

Associate Professor, Aerospace Engineering; B.S., Massachusetts Institute of Technology, 1988; M.Eng., 1990; Ph.D., University of Michigan-Ann Arbor, 1999.

**Atkinson, Nancy L.**

Assistant Professor, Public & Community Health; B.A., University of North Carolina-Chapel Hill, 1985; M.A., University of Maryland-College Park, 1992; Ph.D., 1997.

**Auchard, John**

Professor, English; B.A., New York University, 1970; M.A., University of Michigan-Ann Arbor, 1971; Ph.D., University of North Carolina-Chapel Hill, 1980.

**Auerbach, Jonathan D.**

Professor, English; B.A., University of California-Santa Cruz, 1976; M.A., Johns Hopkins University, 1978; Ph.D., 1984.

**Auslander, Joseph**

Professor Emeritus, Mathematics; B.S., Massachusetts Institute of Technology, 1952; M.S., University of Pennsylvania, 1953; Ph.D., 1957.

**Austin, Mark A.**

Associate Professor, Civil & Environmental Engineering; Associate Professor, Institute for Systems Research; B.E., University of Canterbury, 1980; M.S., University of California-Berkeley, 1982; Ph.D., 1985.

**Ausubel, Lawrence M.**

Professor, Economics; B.A., Princeton University, 1980; M.S., Stanford University, 1982; M.L.S., 1984; Ph.D., 1984.

**Avramov, Doron E.**

Associate Professor, Robert H. Smith School of Business; B.A., Hebrew University of Jerusalem, 1990; M.A., 1994; Ph.D., University of Pennsylvania, 2000.

**Aycock, Marvin K., Jr.**

Professor Emeritus, Natural Resource Sciences & Landscape Architecture; B.S., North Carolina State University, 1959; M.S., 1963; Ph.D., Iowa State University, 1966.

**Aydilek, Ahmet H.**

Assistant Professor, Civil & Environmental Engineering; B.S., Istanbul University, 1993; M.S., University of Wisconsin-Madison, 1996; Ph.D., 2000.

**Ayyub, Bilal M.**

Professor, Civil & Environmental Engineering; B.S., Kuwait University, 1980; M.S., Georgia Institute of Technology, 1981; Ph.D., 1983.

## 250 Administrators and Faculty

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### **Azarm, Shapour**

Professor, Mechanical Engineering; B.S., University of Tehran, 1977; M.S., George Washington University, 1979; Ph.D., University of Michigan-Ann Arbor, 1984.

### **Azevedo, Roger**

Associate Professor, Human Development; B.A., Concordia University-Montreal, 1989; M.A., 1993; Ph.D., McGill University-Montreal, 1998.

### **Babuska, Ivo M.**

Distinguished University Professor Emeritus, Mathematics; Dipl. Ing., Technical University of Prague, 1949; Ph.D., 1951; Ph.D., Czechoslovak Academy of Sciences, 1955; D.Sc., 1960.

### **Baden, Andrew R.**

Professor & Associate Chair, Physics; B.A., University of Wisconsin-Madison, 1975; B.A., San Francisco State University, 1981; Ph.D., University of California-Berkeley, 1986.

### **Baecher, Gregory B.**

Professor, Civil & Environmental Engineering; B.S., University of California-Berkeley, 1968; M.S., Massachusetts Institute of Technology, 1970; Ph.D., 1972.

### **Baeder, James D.**

Associate Professor, Aerospace Engineering; B.S., Rice University, 1983; M.S., Stanford University, 1984; Ph.D., 1989.

### **Baehrecke, Eric H.**

Adjunct Associate Professor, Cell Biology & Molecular Genetics; Affiliate Assistant Professor, Entomology; B.S., University of Massachusetts-Amherst, 1986; M.S., Texas A&M-University-Galveston, 1988; Ph.D., University of Wisconsin-Madison, 1992.

### **Baer, Ferdinand**

Professor Emeritus, Atmospheric & Oceanic Science; Professor Emeritus, Earth System Science Interdisciplinary Center; B.A., University of Chicago, 1950; M.S., 1954; Ph.D., 1961.

### **Bahr, Carolina Rojas**

Assistant Director, Office Multi-Ethnic Student Education; French Teaching Degree, Paris III University, 1973; B.S., Universidad Catolica, Asuncion, Paraguay, 1979; M.S., University of New Mexico-Albuquerque, 1983.

### **Bailey, Elaine Long**

Instructor, Institute of Applied Agriculture; B.S., Clemson University, 1982; M.S., Iowa State University, 1984.

### **Bailey, Joseph P.**

Research Associate Professor, Decision & Information Technology; B.S., Carnegie-Mellon University, 1992; M.S., Stanford University, 1993; Ph.D., Massachusetts Institute of Technology, 1998.

### **Bakshi, Gurdip S.**

Professor, Robert H. Smith School of Business; B.Elect.E., Punjab College, 1985; M.S., University of Wisconsin-Madison, 1989; Ph.D., 1992.

### **Balachandran, Balakumar**

Professor, Mechanical Engineering; B.Tech., Indian Institute of Technology-Madras, 1985; M.S., Virginia Polytechnic Institute & State University, 1986; Ph.D., 1990.

### **Balaras, Ilias**

Assistant Professor, Mechanical Engineering; B.S., Democritus University, Xanthi, 1990; M.S., Ecole Polytechnique, de Lausanne, 1991; Ph.D., Ecole Polytechnique Federale de Lausanne, 1995.

### **Baldwin, Andrew H.**

Associate Professor & Acting Chair, Biological Resources Engineering; B.S., Tufts University, 1983; B.S., 1983; Ph.D., Louisiana State University-Baton Rouge, 1996.

### **Baldwin, Thomas R.**

Lecturer, School of Music; B.Mus., Ithaca College, 1990.

### **Ball, Michael O.**

Professor, Robert H. Smith School of Business; Professor, Institute for Systems Research; B.E.S., Johns Hopkins University, 1972; M.S.E., 1972; Ph.D., Cornell University, 1977.

### **Ballou, Jonathan Davis**

Adjunct Assistant Professor, Biology; B.A., University of Virginia, 1977; M.S., George Washington University, 1985; Ph.D., University of Maryland-College Park, 1995.

### **Balthrop, Carmen A.**

Associate Professor, School of Music; B.Mus., University of Maryland-College Park, 1971; M.Mus., Catholic University of America, 1972.

### **Bandel, V. Allan**

Professor Emeritus, Natural Resource Sciences & Landscape Architecture; B.S., University of Maryland-College Park, 1959; M.S., 1962; Ph.D., 1965.

### **Baniak, John J.**

Director, Civil & Environmental Engineering; B.S., SUNY-Albany, 1967.

### **Bar-Cohen, Avram**

Distinguished University Professor & Chair, Mechanical Engineering; B.S., Massachusetts Institute of Technology, 1968; M.S., 1968; Ph.D., 1971.

### **Baras, John S.**

Lockheed Martin Chair in Systems Engineering; Director, Maryland Hybrid Networks Center; Professor, Electrical & Computer Engineering; Professor, Institute for Systems Research; Affiliate Professor, Computer Science; B.S., National Technical University of Athens, 1970; S.M., Harvard University, 1971; Ph.D., 1973.

### **Barbari, Timothy A.**

Professor, Chemical & Biomolecular Engineering; B.S., Colorado School of Mines, 1979; M.S., University of California-Berkeley, 1981; Ph.D., University of Texas-Austin, 1986.

### **Barbe, David F.**

Professor & Associate Director, Maryland Technology Enterprise Institute; Professor, Electrical & Computer Engineering; B.S., West Virginia University, 1962; M.S., 1964; Ph.D., Johns Hopkins University, 1969.

### **Barber, Benjamin R.**

Distinguished University Professor, Government & Politics; Distinguished University Professor, School of Public Policy; B.A., Grinnell College, 1960; M.A., Harvard University, 1963; Ph.D., 1966.

### **Barbieri, Anthony F.**

Lecturer, Philip Merrill College of Journalism; B.A., George Washington University, 1970.

### **Barbosa, Pedro**

Professor, Entomology; B.S., City University of New York-City College, 1966; M.S., University of Massachusetts-Amherst, 1969; Ph.D., 1971.

### **Barg, Alexander**

Professor, Electrical & Computer Engineering; Professor, Institute for Systems Research; Affiliate Professor, Computer Science; M.S., Moscow Institute of Engineering & Physics, 1981; Ph.D., Institute for Inform. Trans. Problems, Russian Acad Sci, 1987.

### **Barker, Donald B.**

Professor, Mechanical Engineering; B.S.M.E., University of Washington, 1969; M.S., 1971; Ph.D., University of California-Los Angeles, 1976.

### **Barkin, Steve M.**

Associate Professor, Philip Merrill College of Journalism; A.B., Washington University in Saint Louis, 1967; M.S., Columbia University, 1968; Ph.D., Ohio State University-Columbus, 1979.

### **Barkley Brown, Elsa**

Associate Professor, History; Associate Professor, Women's Studies; B.A., DePauw University, 1972; Ph.D., Kent State University, 1994.

### **Barlow, Diane Ledbetter**

Associate Dean, College of Information Studies; B.S., Auburn University, 1963; M.L.S., University of Maryland-College Park, 1976; Ph.D., 1989.

### **Barlow, Jewel B.**

Director, Aerospace Wind Tunnel; B.Sc., Auburn University, 1963; M.S., 1964; Ph.D., University of Toronto, 1970.

### **Barry, Duncan Cameron Haviland**

Program Coordinator, A. James Clark School of Engineering; B.A., Hampshire College, 2003.

### **Barry, Jackson G.**

Professor, English; B.A., Yale University, 1950; M.A., Columbia University, 1951; M.F.A., Case Western Reserve University, 1962; Ph.D., 1963.

### **Bartol, Kathryn M.**

Professor, Robert H. Smith School of Business; Distinguished Scholar-Teacher; B.A., Marygrove College, 1963; M.A., University of Michigan-Ann Arbor, 1966; Ph.D., Michigan State University, 1972.

### **Barua, Rajeev Kumar**

Associate Professor, Electrical & Computer Engineering; Associate Professor, Institute for Systems Research; Affiliate Associate Professor, Computer Science; B.S., Indian Institute of Technology-Delhi, 1992; M.S., Massachusetts Institute of Technology, 1994; Ph.D., 2000.

### **Basili, Victor R.**

Professor, Computer Science; Professor, Institute for Advanced Computer Studies; B.S., Fordham University, 1961; M.S., Syracuse University, 1963; Ph.D., University of Texas-Austin, 1970; Ph.D., University of Sannio, Benevento, 2004; Ph.D., University of Kaiserslautern, 2005.

### **Bassen, Howard I.**

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## CHAPTER 10

# Appendices

## Appendix A: Human Relations Code

*Effective date 18 October, 1976;*

*Revised April 1998;*

*Approved by President, May 6, 1978*

### Article I Purpose

- A. The University of Maryland, College Park, affirms its commitments to a policy of eliminating discrimination on the basis of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental disability, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution. This code is established to prevent or eradicate such discrimination in accordance with due process within the Campus community. In doing so, the Campus recognizes that it must strive actively and creatively to build a community in which opportunity is equalized.
- B. Accordingly, the Campus Senate of the University of Maryland, College Park, establishes this Human Relations Code to:
  1. prohibit discrimination as defined in this document within the College Park campus community both by educational programs and, to the extent specified herein, by a formal grievance procedure;
  2. establish the responsibilities of the Adjunct Committee on Human Relations of the Senate General Committee on Campus Affairs;
  3. establish the responsibilities of the Office of Human Relations Programs in connection with this code;
  4. establish mediation and grievance vehicles within the colleges of the campus, in conformity with the campus Affirmative Action Plan;
  5. establish the responsibilities of Equal Education and Employment Opportunity (EEEE) Officers.
- C. Every effort will be made to make students and potential students, employees and potential employees, faculty members and potential faculty members aware of the opportunities that the campus provides for every individual to develop and utilize his or her talents and skills. It is the intent of the campus to enhance among its students and employees respect by each person for that person's own race, ethnic background, sex, or sexual orientation as well as appreciation and respect for the race, ethnic background, sex or sexual orientation of other individuals.
- D. Development of a positive and productive atmosphere of human relations on the campus shall be encouraged through effective dialogue and broadening of communications channels. The Adjunct Committee on Human Relations and the Office of Human Relations Programs shall provide support and assistance, as authorized, to any individual or group deemed by them to have a positive probable impact in working toward increased understanding among all individuals and groups on the campus.
- E. The Senate Adjunct Committee on Human Relations shall advise the Office of Human Relations Programs in recommending policies that fulfill the provisions of this code. In particular:
  1. The Senate Adjunct Committee on Human Relations shall be an adjunct committee of the standing Senate General Committee on Campus Affairs.
  2. The purpose of the Senate Adjunct Committee on Human Relations shall be to foster better human relations among all individuals and groups on the campus, to advise in the development of positive and creative human relations programs, to advise in the prevention and eradication of all forms of discrimination prohibited by this code, and to make regular assessments of the state of human relations within the purview of this campus.
3. The functions of the Senate Adjunct Committee on Human Relations may include but are not limited to: requesting the Office of Human Relations Programs to conduct investigations of complaints of discrimination because of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution; providing an "open forum" for effective dialogue among all segments of the campus community; recommending to appropriate campus bodies educational programs and activities to promote equal rights and understanding; periodically reviewing such programs and activities; initiating studies of campus-sponsored or recognized programs and activities to determine how improvement can be made in respect to human relations; continually reviewing progress toward these ends and making such further recommendations as experience may show to be needed; and participating to the extent set forth herein in formal human relations grievance actions.
- F. There shall be an Office of Human Relations Programs directly responsible to the president. This office shall plan, develop, give direction to and coordinate the overall campus effort to prevent and eliminate discrimination based on race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution, in all areas of campus life (this overall effort is referred to herein as the "Human Relations Program"). The office shall represent, and have direct access to, the president, and shall cooperate with the Senate Adjunct Committee on Human Relations on substantive matters concerning human relations. The office shall assist and coordinate the human relations activities of the Equal Employment and Educational Opportunity officers and the equity officers representing the various units of the campus.
 

The duties and responsibilities of the Office of Human Relations Programs shall include but not be limited to the following: working with deans, directors, and department chairs to ensure full compliance, in spirit as well as in letter, with laws relating to discrimination and with the campus Human Relations Code; advising campus offices in efforts to assist personnel to recognize and take advantage of career opportunities within the campus; working with appropriate offices in the surrounding community on such issues as off-campus housing practices affecting campus students and employees, transportation, etc.; recommending to the Off-Campus Housing Office removal from or reinstatement upon lists of off-campus housing, so as to ensure that listed housing is available on a nondiscriminatory basis. (N.B. any final action taken by the university shall be preceded by proper notice to the property owner involved, and an opportunity to be heard); conducting reviews of compliance with the campus Affirmative Action Plan; initiating and carrying out programs for the elimination and prevention of racism and sexism on campus; distributing this code and informing the campus community of the interpretations of its provisions; sending periodic reports to the president and to the Senate Adjunct Committee on Human Relations concerning the Human Relations Programs; and participating to the extent set forth herein in formal human relations grievance actions.
- G. For each of the colleges of the campus, the Division of Administrative Affairs, and the Division of Student Affairs, there shall be an equity officer, who is designated in accordance with the Affirmative Action Plan and who has the duties specified by the campus Affirmative Action Plan and like duties with respect to the forms of discrimination prohibited by this code.



## Article II Coverage

- A. Kinds of Discrimination Prohibited:
1. Discrimination in employment, job placement, promotion, or other economic benefits on the basis of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution.
  2. Discrimination in criteria of eligibility for access to residence, or for admission to and otherwise in relation to educational, athletic, social, cultural, or other activities of the campus because of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution.
- B. For the purposes of this code, "personal appearance" means the outward appearance of any person, irrespective of sex, with regard to bodily condition or characteristics, manner or style of dress, and manner or style of personal grooming, including, but not limited to, hair style and beards. It shall not relate, however, to the requirement of cleanliness, uniforms, or prescribed standards, when uniformly applied for admittance to a campus facility, or when uniformly applied to a class of employees, or when such bodily conditions or characteristics, or manner or style of dress or personal grooming presents a danger to the health, welfare or safety of any individual.
- C. This code shall apply to the campus community. The term "campus community" is limited to campus students, faculty, and staff; and to departments, committees, offices and organizations under the supervision and control of the campus administration.
- D. Exceptions
1. The enforcement of Federal, State or County laws and regulations does not constitute prohibited discrimination for purposes of this code. Separate housing or other facilities for men and women, mandatory retirement-age requirements, separate athletic teams when required by athletic conference regulations and political, religious and ethnic/cultural clubs are not prohibited.
  2. Discrimination is not prohibited where based on a bona fide job qualification or a qualification required for the fulfillment of bona fide educational or other institutional goals. Complaints concerning the legitimacy of such qualifications may be the subject of human relations grievance actions.
  3. The provisions of this code shall not apply to potential students or potential employees of the university. However, applicants for admission or employment who believe they have been discriminated against by any part of the campus community may convey such belief together with all relevant facts to the Office of Human Relations Programs, for informational purposes.
  4. The grievance procedures under this code shall not apply to judgments concerning academic performance of students (e.g., grades, dissertation defenses), pending further study and action by the Campus Senate and university administration.
  5. The campus, with the advice and approval of the Attorney General's Office, shall review on a continuing basis all new laws and regulations that apply to this campus to determine if any shall require changes in the coverage or exceptions to coverage of this code.
- E. This code shall apply to the campus community in relation to, but not only to, the following:
1. All educational, athletic, cultural, and social activities occurring on the campus or in another area under its jurisdiction;
  2. All services rendered by the campus to students, faculty, and staff, such as job placement and job recruitment programs and off-campus listings of housing;
  3. University-sponsored programs occurring off campus, including cooperative programs, adult education, athletic events, and any regularly scheduled classes;
  4. Housing supplied, regulated, or recommended by the campus for students, staff and visitors, including fraternities and sororities;
  5. Employment relations between the campus and all of its employees, including matters of promotion in academic rank, academic salary, and termination of faculty status, as limited in III.M.

## Article III Human Relations Enforcement Procedures

- A. In order to identify policies or practices that may reflect discrimination, the Senate Adjunct Committee on Human Relations may request the Office of Human Relations Programs to conduct periodic review of the operation of any unit of the campus. Units shall provide the information necessary for carrying out such reviews. This information shall be submitted through the president's Office. Any such review under the authority granted in this statement of policy shall be undertaken only after specific authorization of the president. In the event that the president fails to authorize an investigation within a reasonable time of the request by the Senate Adjunct Committee on Human Relations, the chair of the Committee shall report that fact, together with reasons as he/she may have received from the president concerning the matter, to the Senate.
- B. The Office of Human Relations Programs on its own motion shall identify policies, practices, or patterns of behavior that may reflect discrimination prohibited by this code or that may conflict with any other campus policy concerning human relations or with the campus Affirmative Action Plan, and shall call these to the attention of the appropriate officials of the unit involved and recommend appropriate action. Those subject to allegations of discrimination shall be afforded all the protections of due process. The office shall endeavor by negotiation to eliminate the alleged discrimination. Where such efforts fail, the office may on its own motion report the matter to the president and to the Senate Adjunct Committee on Human Relations. Documentation of the recommendations by the office in all such cases shall be maintained on file by the office.
- C. To the maximum extent consistent with the purposes of this code, the confidentiality of personal papers and other records and the principle of privileged communication shall be respected by all persons involved in the enforcement procedures of this code. Nothing in this code shall be construed so as to conflict with the requirements of Article 76A of the Maryland Annotated Code. Persons giving information in connection with the procedures described in this code shall be advised by the person receiving such information of the limits of confidentiality which may properly be observed in code procedures and that all documents may be subject to subpoena in subsequent administrative or judicial proceedings.
- D. Any member of the campus community who believes that he or she has been or is being discriminated against in ways prohibited by this code may consult informally and confidentially with the unit EEO Officer and/or the equity officer and/or the Office of Human Relations Programs prior to filing a formal complaint.
- E. The Office of Human Relations Programs shall receive formal complaints from any member or group within the Campus community claiming to be aggrieved by alleged discrimination prohibited by this Code and/or any other Campus document or policy relating to human relations practices. Such complaints should give in writing the names of complainant(s) and respondent(s) and the time, the place, and a specific description of the alleged discrimination. Complaints shall be submitted to the Office of Human Relations Programs, or else to the unit EEO Officer or the Equity Administrator. Complaints must be submitted within ninety (90) days of the alleged discrimination act(s), or within ninety (90) days of the first date by which the complainant reasonably has knowledge thereof. Complaints not submitted directly to the Office of Human Relations Programs shall be forwarded to the Office of Human Relations Programs within five (5) working days of their receipt. Copies of the complaint shall be forwarded by the Office of Human Relations Programs to the respondent and to the appropriate unit Chair or Director, Dean or Vice President.
- F. Complainants under this code shall be required, as a condition precedent, to waive any alternative campus administrative procedure that may then be available. A complaint that has been heard under some alternative campus procedure cannot subsequently be heard under the procedure of this code. In the case of a complaint heard under the Classified Employees Grievance Procedure, this restriction shall apply only when the complaint has entered Step Three of that procedure.
- G. The Office of Human Relations Programs and/or the equity officer shall ensure that each complainant is informed of his/her right to file the complaint with the appropriate State and Federal agencies. Forms for complaints to State and Federal agencies will be provided or the complainant will be informed where they are available.
- H. All complaints of discrimination that are not connected with the official functions of the campus or do not fall within the scope of discrimination prohibited by this code shall be referred to the appropriate campus, municipal, County, State, or Federal agencies by the Office of Human Relations Programs.
- I. After a complaint has been filed, the Office of Human Relations Programs shall promptly undertake an informal investigation in order to make a preliminary determination as to whether or not the subject matter of the complaint falls within the code, and whether or not there is probable cause for the complaint. This finding shall be reported to the

complainant, the respondent, the president, and the chair of the Senate Adjunct Committee on Human Relations. The burden of proof in this investigation and throughout these enforcement procedures rests with the complainant.

- J. If the finding is that there is not probable cause to believe that discrimination has been or is being committed within the scope of this code, the Office of Human Relations Programs may dismiss the complaint. Such dismissal shall be reported to the complainant, the respondent, the president, and the chair of the Senate Adjunct Committee on Human Relations. The complainant in such a case may appeal the dismissal of the case to the Senate Adjunct Committee on Human Relations, which may direct that a Human Relations Grievance Committee conduct a grievance hearing according to the procedures set forth herein, if in the judgment of the Senate Adjunct Committee on Human Relations there is probable cause to believe that discrimination has been or is being committed within the scope of this code. The Senate Adjunct Committee on Human Relations shall have access to the complaint file for this purpose. A record of its deliberations shall be placed in the file according to the procedures established by the Office of Human Relations Programs. If the committee finds no probable cause, it may dismiss the complaint, and report such dismissal to the complainant, the respondent, and the president.
- K. If the finding is that there is probable cause to believe that discrimination has been or is being committed within the scope of this code, the Office of Human Relations Programs shall endeavor to eliminate the alleged discrimination by conference conciliation and persuasion. If by this process, an agreement is reached for elimination of the alleged discrimination, the agreement shall be reduced to writing and signed by the respondent, the complainant and the director of the Office of Human Relations Programs. The agreement shall be available to the president, the equity officer, and to the chair of the Senate Adjunct Committee on Human Relations, upon request.
- L. If a finding of probable cause is made but no mutually satisfactory solution can be reached under the procedures outlined in section K immediately preceding, the Office of Human Relations Programs shall initiate the following procedure: the Office shall notify the Senate Adjunct Committee on Human Relations of the failure to reach a mutually satisfactory solution, whereupon, providing the complainant requests in writing a Human Relations Grievance Hearings, a Human Relations Grievance Committee shall be selected according to the procedures described in Article IV following. Grievance hearing shall be closed unless both parties to the dispute agree that the hearing, or any part thereof, shall be open to the public. All parties to the dispute shall be sent within five (5) working days of the written request of such a hearing, written notification of the time and place of the beginning of the hearing and a specific statement of the charges. Hearings shall be held as promptly as is consistent with allowing adequate time for the parties to prepare their cases. Continuances may be granted within the discretion of the Office of Human Relations Programs. All parties shall have ample opportunity to present their facts and arguments in full during the hearing. All findings, recommendations, and conclusions by the Grievance Committee shall be based solely on the evidence presented during the hearing, and shall be based on a preponderance of the evidence having probative effect. The burden of proof rests with the complainant. The Grievance Committee may be assisted by an advisor. All the parties to the dispute and the Grievance Committee may invite persons to testify during the hearing. Each side shall have the right to cross-examine witnesses. Each party has the right to be represented by counsel or other representative, but the university has no obligation to provide such counsel for any party to the dispute. If a party intends to be represented by legal counsel during the hearing, he/she shall inform the Office of Human Relations Programs of this fact no later than seventy-two (72) hours prior to the hearing, and that office shall provide that information to the other party or parties. A verbatim record shall be kept of all sessions in which testimony and evidence are presented regarding the case, and this record shall be made available to all parties to the dispute at the conclusion of the proceedings. Upon request the chair of the Grievance Committee may, in his or her discretion, recess the hearing to permit review of the record by one or more parties in the conduct of their case. The chair of a Human Relations Grievance Committee with the advice of the advisor, if there is one, shall rule on all matters of procedure and admissibility of evidence. Any member of the committee not concurring in the ruling of the chair may request a closed session of the committee for debate on the point. A majority vote of the committee will determine the final decision. Formal rules of evidence shall not be applicable to any hearing before a Human Relations Grievance Committee, and any evidence or testimony that the committee believes to be relevant to a fair determination of the complaint may be admitted. The committee reserves the right to exclude incompetent, irrelevant, immaterial and repetitious evidence.
- M. In cases of allegations regarding prohibited discrimination concerning academic employment matters, a Human Relations Grievance Committee shall not substitute its judgment of academic competence for the judgment of the appropriate colleagues of the complainant. The function of the Grievance Committee shall be to determine
  - a. whether there were clearly enunciated university, campus and department standards, policies, procedures, and priorities by which to assess the merit of the complaint, and whether the complainant was given a reasonable opportunity to demonstrate his/her academic merit;
  - b. whether the stated standards, policies, procedures, and priorities were applied to the complainant in a nondiscriminatory manner.
- N. Within ten (10) working days after hearing all the evidence and arguments, the Human Relations Grievance Committee shall prepare a written decision based solely on the evidence presented at the hearing. This decision shall include a summary of the evidence before the committee and the committee's findings as to whether or not a violation of the code has occurred, and the recommendations of the committee. Grievance Committees may recommend whatever forms of relief they deem appropriate, but must take due cognizance of the limitations imposed by State law and by the procedures established by the Board of Regents, for example, the procedures by which promotion in academic rank is achieved. Within five (5) working days after the decision has been filed in the Office of Human Relations Programs, the director of that office will formally notify all parties to the dispute, the president, and the Senate Adjunct Committee on Human Relations of the decision.
- O. The president shall within ten (10) working days of receipt of the decision of the Human Relations Grievance Committee issue an order specifying what actions, if any, must be taken by individuals or groups found to be guilty of violating the provisions of this code.
- P. When a hearing has been scheduled by an outside agency or court, the Office of Human Relations Programs may, with the approval of the Senate Adjunct Committee on Human Relations, prior to the convening of a Human Relations Grievance Committee to hear a case, postpone or terminate the campus grievance proceedings when such postponement or termination is in its judgment warranted by administrative considerations such as staff limitations and workload, or at the request of a party upon a showing that the campus hearing will either conflict with the off-campus hearing, or that participation in the campus hearing will unreasonably burden a party's preparation of his/her case or otherwise work to his/her prejudice. Such postponement or termination shall be reported to the complainant, respondent, and president. In any case where a complaint has been the subject of prior administrative or judicial resolution or where a complaint becomes the subject of such resolution during the course of proceedings under this code, the procedures of this code will not be applicable or will terminate, as the case may be.
- Q. The president shall provide a written explanation of the order whenever that order is not in keeping with the findings and recommendations of the Human Relations Grievance Committee. This explanation shall be sent to all parties to the dispute, to the chair of the Senate Adjunct Committee on Human Relations, to the director of the Human Relations Programs, and to the chair of the Senate. The chair of the Senate Adjunct Committee on Human Relations shall report to the Senate Executive Committee concerning the order and explanation at the next meeting of the Executive Committee, and that body shall put the matter on the agenda of the next meeting of the Senate.
- R. When required by law, copies of the Human Relations Grievance Committee's findings and recommendations and of the Chancellor's order and explanation, if any, shall be sent to the State and Federal agencies charged with enforcement of Article 49B of the Annotated Code of Maryland and the Equal Employment Opportunity Act of 1968 or their successors.
- S. When a complainant receives a decision on his/her charge of discrimination from a Human Relations Grievance Committee that decision shall not be subject to review under any grievance procedure in force on the campus.
- T. No affirmative relief shall be made to a complainant by the University unless the complainant executes the following release as part of a settlement agreement:  
 The complainant hereby waives, releases, and covenants not to sue the University of Maryland or its officers, agents, or employees with respect to any matters that were or might have been alleged as charges filed under the Human Relations Code in the instant case, subject to performance by the University of Maryland, its officers, agents, and employees, of the promises contained in this settlement agreement.

## Article IV Constitution of Human Relations Grievance Committee

- A. A Human Relations Grievance Committee shall consist of five members selected by an affirmative vote of at least two members of a selection panel consisting of 1) The vice president of the unit of the campus within which the alleged discrimination falls. In cases of disputed jurisdiction, decisions as to which vice president shall participate will be made by the several vice presidents. 2) The director of the Office of Human Relations Programs. 3) The chair of the Senate Adjunct Committee on Human Relations. If any of these persons is unable to participate, he or she shall designate a suitable replacement.
- B. The selection of a Human Relations Grievance Committee shall be made in such a way as to promote a fair and impartial judgment. An effort shall be made to constitute the Grievance Committee of persons reasonably familiar with the kind of employment or other situation that the case concerns.
- C. A determined effort shall be made to gain the consent of complainant and respondent concerning the membership of the Grievance Committee. If in the judgment of the selection panel such efforts become unreasonably prolonged, membership will be determined by majority vote of the selection panel.
- D. None of the members of a Grievance Committee shall have been involved in the action that is the subject of the complaint. This selection panel shall remove a member of a Grievance Committee whenever it finds that member to have a personal involvement in that case; and may excuse a member from serving on the Grievance Committee on grounds of illness or on other reasonable grounds.
- E. Members of the Senate Adjunct Committee on Human Relations shall not be eligible concurrently for inclusion on Human Relations Grievance Committees.
- F. The chair of a Human Relations Grievance Committee shall be elected by the members of the committee.
- G. Members of a Human Relations Grievance Committee and those officially involved in a hearing shall not be penalized either academically or financially for time missed from work or classes during official meetings of the committee.

## Article V The Equal Education and Employment Opportunity Officer

- A. Equal Education and Employment Opportunity Officers shall be instrumental in the implementation of the Human Relations Code within each unit of the College Park campus.
- B. Employees on all levels within each unit of the campus will have access to the assistance of an EEO Officer. In non-academic units, EEO Officers shall be elected by unit employees under the supervision of the equity officer within whose responsibility the unit falls, or shall be selected by the unit director in consultation with the appropriate equity officer, in either case in accordance with the Affirmative Action Plan of that unit. EEO Officers in the academic colleges shall be chosen in the manner prescribed by the council of each college.
- C. The functions of EEO Officers shall include but not be limited to:
  1. Advising unit administrators with respect to the preparation plans, procedures, regulations, reports, and other matters pertaining to the campus Human Relations Program.
  2. Evaluating periodically the effectiveness and sufficiency of unit Affirmative Action Plans and other unit plans in relation to the goals of this code, and reporting these to unit administrators with recommendations as to what improvements or corrections are needed.
  3. Participating in the development of policies and programs within units with respect to hiring and recruitment, training and upgrading, and in all matters pertaining to the elimination of discrimination prohibited by this code. If a unit fails to develop policies and programs of this nature, it is the task of the EEO officer to act in an advocacy role and call this fact first to the attention of the unit administrator, and if no responsive action ensues, then to the Collegiate Assistant for Affirmative Action. The EEO officer is free at all times to report such cases directly to the Office of Human Relations Programs and the Senate Adjunct Committee on Human Relations.
  4. Serving in a liaison capacity between the unit to which he/she is assigned and all segments of its personnel and attempting to remedy problems brought to his/her attention regarding alleged discrimination.
  5. Advising students or employees of the unit who have reason to believe that discrimination as defined in this code is occurring. At the request of the aggrieved person the EEO officer shall keep any or all aspects of the grievance confidential until a formal complaint has been filed. If the aggrieved so requests, the EEO officer shall

attempt to resolve the matter, calling upon the assistance of the equity officer where appropriate. The EEO officer will keep a record of such advisory and conciliatory activities and periodically brief the equity officer.

6. Advising and otherwise aiding complainants in making formal complaints under this code. When a complaint is filed with an EEO officer, the complaint shall be forwarded by that officer within five (5) working days to the equity officer and the Office of Human Relations Programs. The EEO officer shall be available to assist in a preliminary investigation of the complaint conducted under the general supervision of the Office of Human Relations Programs, to determine whether there is probable cause to believe that prohibited discrimination has occurred.
7. Making recommendations to the Office of Human Relations Programs to help facilitate human relations programs on campus.
8. Assisting units in publicizing the functions of EEO officers.
9. Collecting pertinent information regarding hiring, upgrading and promotion opportunities within units and disseminating such information to appropriate personnel.
- D. The EEO officer shall have the full support of the unit administration, the college administration, and the Office of Human Relations Programs. The EEO officer shall be afforded reasonable time from other regular duties to perform the functions of the office. These functions shall qualify as part of a workday in the case of a staff member and as partial fulfillment of required committee loads in the case of faculty. The EEO officer shall be free from interference, coercion, harassment, discrimination, or unreasonable restraints in connection with the performance of the duties specified in this code.

## Article VI Effective Date

This Code shall be effective as revised as of April 6, 1998.

## Appendix B: University of Maryland Policy and Procedures on Sexual Harassment

*Approved by the President  
August 1, 1991;  
Revised December 13, 2004*

### A. Policy

UM is committed to maintaining a working and learning environment in which students, faculty, and staff can develop intellectually, professionally, personally, and socially. Such an environment must be free of intimidation, fear, coercion, and reprisal. Accordingly, the Campus prohibits sexual harassment. Sexual harassment may cause others unjustifiable offense, anxiety, and injury. Sexual harassment threatens the legitimate expectation of all members of the Campus community that academic or employment progress is determined by the publicly stated requirements of job and classroom performance, and that the Campus environment will not unreasonably impede work or study.

Sexual harassment by University faculty, staff, and students is prohibited. This constitutes Campus policy. Sexual harassment may also constitute violations of criminal and civil laws of the State of Maryland and the United States. For the purpose of this Campus policy, sexual harassment is defined as: (1) unwelcome sexual advances; or (2) unwelcome requests for sexual favors; or (3) other behavior of a sexual or gender-based nature where:

- a. Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or participation in a University sponsored educational program or activity; or
- b. Submission to or rejection of such conduct by an individual is used as the basis for academic or employment decisions affecting that individual; or
- c. Such conduct has the purpose or effect of unreasonably interfering with an individual's academic or work performance, or of creating an intimidating, hostile, or offensive educational or working environment.

In assessing whether a particular act constitutes sexual harassment forbidden under this policy, the standard shall be the perspective of a reasonable person within the College Park Campus community. The rules of common sense and reason shall prevail. Nothing in this policy limits expression protected under the First Amendment, campus freedom of expression, or similar policies. Allegations of sexual harassment shall be judged with attention to the facts particular to the case and the context in which the alleged incident(s) occurred.

Conduct prohibited under this policy may manifest itself in many different ways. Sexual harassment may, for example, be as undisguised as a direct solicitation of sexual favors, or solicitation accompanied by overt threats. Harassment may also arise from behavior that has the effect of creating an intimidating, hostile, or offensive educational or working environment. In this regard, the following types of acts, if pervasive and continuous, are most likely to result in allegations of sexual harassment: unwelcome physical contact; sexual remarks about a person's clothing, body, or sexual relations; conversation of a sexual nature or similar jokes and stories; and the display of sexually explicit materials in the workplace or used, without defensible educational purpose, in the classroom.

Sexual harassment may occur within a variety of relationships. It may occur among peers. It may occur where no relationship exists between the parties other than being coemployees or co-students. Especially injurious is harassment in relationships characterized by inequality of power, where one party has institutional authority over the other. Inherent in these relationships is the power and fear of reprisal. Typically, such relationships are found between employer and employee; senior faculty and junior faculty; graduate teaching assistant and undergraduate; and faculty and student, when the student is enrolled in a faculty member's class or when the student is in a continuing position to require evaluation of work or letters of recommendation from the faculty. Such relationships can be immediate or based upon future expectations, for example, the need for future evaluations and references. Sexual harassment may occur between persons of the same or different sex.

Education and awareness are the best tools for the elimination of sexual harassment. The Campus is committed to taking appropriate action against those who violate the provisions of the policy. The Campus is committed to protecting targets of harassment from retaliation.

## B. PROCEDURES

### 1. General Principles.

Preventing sexual harassment is a responsibility of the entire Campus community. The Campus has made this a priority, but ultimately, no satisfactory investigation or resolution of a complaint can occur without the initiative and continuous cooperation of the person who feels injured.

Similarly, allegations of sexual harassment are extremely serious, with potential for great harm to all persons if ill-conceived or without foundation. Procedures which implement Campus policy recognize the potential for harm. The Campus is committed to protecting the rights of the alleged offender as well as the offended. VI-1.20(A) page 3

### 2. Confidentiality.

All complaints of sexual harassment are to be kept confidential. This means that the complaint will be discussed only with those who have a legitimate administrative or legal reason to know about the complaint. Information related to a complaint also may be subject to disclosure as required by state or federal law.

### 3. Filing a Complaint.

An individual who believes he or she has been subjected to sexual harassment has several ways to bring this to the attention of the University, and, where proper, obtain redress or protection. There is an Informal Complaint Procedure (see Section 5). There are also Formal Complaint Procedures (see Section 6) sufficiently broad to deal with sexual harassment. These procedures are explained later in this Policy. Faculty, staff and students may report an alleged incident of sexual harassment to:

- the Campus Compliance Officer, Office of Human Relations Programs (405-2839);
- a Departmental or College equity officer;
- any Campus or University official or faculty member, including the reporting individual's supervisor, the department chair or dean;
- the Director of University Human Resources (405-5648);
- the President's Legal Office (405-4945);
- In addition to the options listed above, students also may report an incident of sexual harassment to the Office of Judicial Programs (314-8204).

### 4. Responsibilities of the Person Receiving the Complaint.

Any person who receives a complaint of sexual harassment shall not initiate any action to investigate or resolve the matter until he or she:

- explains that as a person receiving a report of sexual harassment, he/she must notify the Campus Compliance Officer or the Legal Office about the complaint. The Campus Compliance Officer and Legal Office will have a collaborative and information-sharing relationship regarding reports of sexual harassment. The purpose VI-1.20(A) page 4 of contacting one of these offices is:

- to ensure that the receiving person communicates the necessary information to the complainant, (including giving the complainant a copy of the Sexual Harassment Policy)
- to determine what questions the complainant has about the Sexual Harassment Policy and procedures
- to advise who would most likely be the appropriate University Official to handle an Informal Complaint.

- speaks again to the complainant, after consulting with the Campus Compliance Officer and/or Legal Office. After the complainant has had the opportunity to raise any questions about the Sexual Harassment Policy and the Informal Complaint Process, the complainant will be offered the opportunity to decide which process to initiate.

### 5. Informal Complaints.

The Informal Complaint Procedure is intended to be a flexible process so that each case may be handled according to the specific facts presented. The Informal Complaint Procedure has no specific steps, time limits or other prescribed requirements.

- Depending on the specific facts, an Informal Complaint may be reviewed or investigated by a supervisor or similar University official who has administrative authority over the person accused of harassment, or by the Campus Compliance Officer or Campus Legal Office staff. The Campus Compliance Officer and/or Legal Office will determine who is the most appropriate person to handle an Informal Complaint.
- While a written complaint is not required to initiate an Informal Complaint, the complainant will generally be asked to submit a signed complaint. If the matter is to be investigated, consideration shall be given to the situation and the wishes of the complainant.
- The results of the investigation shall be confidentially reported, according to the procedures of the Office of Legal Affairs' and/or the Office of Human Relations Programs' procedures, to the complainant, the alleged VI-1.20(A) page 5 offender, the Legal Office, and as required, to the President, the relevant vice president, dean, chairman, or supervisor. Sanctions for sexual harassment may range from reprimand to termination, depending upon the circumstances of the case.
- Files will normally be kept for the period of time designated in the record retention policy of the office handling the complaint. Complainants and alleged may ask where and how long a file will be kept.
- The person accused of sexual harassment shall be:
  - told that a complaint has been made;
  - informed of the specific facts of the complaint;
  - told that the complainant has chosen to pursue the complaint under the Informal Complaint Procedures;
  - given an opportunity to have his/her questions about the Informal Process answered before any review or investigation proceeds;
  - given a copy of the Sexual Harassment Policy; and
  - advised of his/her rights to contest any disciplinary action taken against him/her as a result of the Informal Complaint Procedure.

### 6. Formal Complaints

Formal procedures for resolving sexual harassment complaints are available based on the classification of the complaining person.

- Faculty, all categories of staff, and students can file a complaint under the University Human Relations Code with a Campus unit equity administrator or the Campus Compliance Officer, Office of Human Relations Programs, 1130 Shriver Laboratory (405-2839). The Human Relations Code is on-line at <http://www.inform.umd.edu/PRES/policies/vi100b.html>
- Faculty members can file a complaint under the Faculty Grievance VI-1.20(A) page 6 Procedure with the Faculty Ombuds Officer, 2132 Main Administration Building (405-1901). The Faculty Grievance Procedure is on-line at <http://www.inform.umd.edu/PRES/policies/ii400a.html>
- Exempt employees can file a complaint under the USM Policy on Grievances for Exempt and Non-Exempt Staff Employees with the Office of Staff Relations, Department of University Human Resources, 1100 Chesapeake Building (405-5651). This grievance policy is on-line at [http://www.usmh.usmd.edu/Leadership/BoardOfRegents/Bylaws/SectionV II/VII800.html](http://www.usmh.usmd.edu/Leadership/BoardOfRegents/Bylaws/SectionV%II/VII800.html)

- d. Non-Exempt employees can file a complaint under the USM Policy on Grievances for Exempt and Nonexempt Staff Employees with the Office of Staff Relations, Department of University Human Resources, 1100 Chesapeake Building (405-5651). This grievance policy is on-line at <http://www.usmh.usmd.edu/Leadership/BoardOfRegents/Bylaws/SectionVII/VII800.html>
- e. A student can file a complaint against another student under the Code of Student Conduct with the Office of Judicial Programs, 2108 Mitchell Building (314-8204). The Code of Student Conduct is on-line at <http://www.inform.umd.edu/PRES/policies/v100b.html>

The procedures listed above are long-standing, structured procedures established by law and/or University System of Maryland policy. Unlike the Informal Complaint Process, each procedure sets out specific steps, time limits, and other formal requirements. Time limits may be extended to take into account behavior considered continuing in nature. The location of a file on a complaint of sexual harassment and how long a file may be retained are determined by the particular procedure used. A complainant or person accused of harassment can find specific information about each of the Formal Complaint procedures by calling the relevant office listed above.

Following is a Statement on Sexual Relationships and Professional Conduct. While sexual relationships in the supervisory context are not prohibited in the sense that penalties are attached to such conduct, all members of the Campus community are urged to consider the ethical concerns that arise as a result of such relationships, and to take prompt and reasonable steps to prevent such issues.

#### STATEMENT ON SEXUAL RELATIONSHIPS AND PROFESSIONAL CONDUCT

The basic function of a university is the discovery and transmission of knowledge, activities which are founded upon the free and open exchange of ideas. In order for productive learning and the work that supports it to occur, members of the Campus community—faculty, students, and staff personnel—should pursue their responsibilities guided by a strong commitment to principles of mutual trust and confidence and professional codes of conduct.

It should be understood by all members of the Campus community that sexual relationships that occur in the context of educational or employment supervision and evaluation are generally deemed very unwise because they present serious ethical concerns. Many professional codes of conduct prohibit sexual relationships that occur within the context of one's profession. Accordingly, faculty and supervisors are warned about the possible costs of even an apparently consensual relationship. The element of power implicit in sexual relationships occurring in the supervisory context can diminish a subordinate's actual freedom of choice. There is doubt whether any such relationship can be truly consensual. In addition, sexual relationships between a professor or supervisor and subordinate create an environment charged with potential conflict of interest. Questions of favoritism frequently arise. As a result, such conduct may subvert the normal structure of incentives that spurs works and learning advancement and interjects attitudes and pressures that are not consonant with the education and employment policies and principles to which the Campus is committed.

## Appendix C: Code of Student Conduct

This appendix contains the Code of Student Conduct for undergraduate and graduate students at the University of Maryland. It is expected that students will conduct themselves with the highest levels of integrity and good character. A few highlights:

1. Cases that may result in suspension or expulsion are heard by judicial boards, composed entirely of students. Less serious cases are resolved in disciplinary conferences conducted by members of the student judiciary, or by University staff members.
2. Students living in the residence halls are also subject to Resident Life regulations. Allegations that a student violated those regulations, as well as the Code of Student Conduct, are normally resolved together in one hearing or conference. Recommendations from the hearing panel are then acted upon separately by the Office of Student Conduct (responsible for university discipline) and the Resident Life, Office of Rights and Responsibilities (responsible for residence hall regulations).
3. Acts of violence (including any sexual assault), intimidation, or disruption; substantial theft or vandalism; academic dishonesty; fraud or forgery; use or distribution of illegal drugs; and any Code of Student Conduct violation motivated by considerations of sex, race, ethnic origin, or religion are forms of misconduct that most frequently result in dismissal from the University.
4. Effective April 2006, students who engage in riotous or other serious misconduct on- or off-campus when related to a University-sponsored event (i.e., athletic event) will face dismissal.
5. Students are accorded substantial procedural protections, including an opportunity for a hearing and an appeal in any case that might result in suspension or expulsion from the University.

6. Informal hearings and other proceedings at educational institutions do not follow the same procedures used in courtrooms. The University does not use attorneys to "prosecute" students, or apply the rules of evidence used in a civil or criminal trial. Instead, charges are investigated and resolved in an atmosphere of candor, truthfulness, and civility. Also, in addition to a just punishment, a primary objective of the disciplinary process is to promote the moral development of those found responsible for violating disciplinary regulations.
7. Students accused of violating University disciplinary regulations are encouraged to discuss the allegations with their parents or guardians, legal counsel, and with appropriate University staff members. For example, international students are encouraged to review the charges against them with an advisor in the International Education Services Office.
8. Additional information about the disciplinary process is available upon request. For example, students subject to a disciplinary hearing should request a copy of the document "Preparing for a Hearing". Comparable information is also available to those who wish to file disciplinary charges.
9. Disciplinary files are normally kept for three years. A procedure is available to allow students to petition to void a disciplinary record earlier. Transcript notations of disciplinary suspension or expulsion are permanent.
10. Academic Integrity policies are administered by the Student Honor Council, in accordance with the Code of Academic Integrity.
11. Compared to disciplinary systems at most universities, Maryland students are given unusual authority and responsibility for management of the campus disciplinary process. Membership on the student judiciary is an extraordinary educational experience, an opportunity to be of service to the community, and a personal honor.
12. The tenets of our office are set forth below. Call me at 301-314-8204 if at any time you believe you have not been treated in accordance with them.

To regard each student as an individual, deserving individual attention, consideration, and respect.

- To consider the facts fully and carefully before resolving any case.
- To speak candidly and honestly with each student.
- To hold each student to a high standard of behavior, both to protect the campus community, and to promote student ethical development.
- To recognize the reality of human fallibility, as well as the stresses associated with collegiate life, and to demonstrate compassion, understanding, and a sense of humor.
- To contribute to the educational mission of the University by designing policies, conducting programs, and offering instruction that contribute to the intellectual and ethical development of the entire student body.

John Zacker  
Director of Student Conduct

**Approved by the Board of Regents  
January 25, 1980**

**(amended September 1991, May 2002, July 2004, April 2006).**

Note: Different procedures and penalties are applicable in cases involving allegations of academic dishonesty. Please refer to the *Code of Academic Integrity*, available from the Office of Student Conduct (301-314-8204).

Footnotes which appear throughout the *Code of Student Conduct* refer to the Annotations listed at the end of this appendix.

### Rationale

1. The primary purpose for the imposition of discipline in the University setting is to protect the campus community. Consistent with that purpose, reasonable efforts will also be made to foster the personal and social development of those students who are held accountable for violations of University regulations.<sup>1</sup>

### Definitions

2. When used in this *Code*:<sup>2</sup>
  - (a) The term "aggravated violation" means a violation which resulted or foreseeably could have resulted in significant damage to persons or property or which otherwise posed a substantial threat to the stability and continuance of normal University or University-sponsored activities.
  - (b) The term "distribution" means sale or exchange for personal profit.

- (c) The term “group” means a number of persons who are associated with each other and who have not complied with University requirements for registration as an organization.
- (d) The terms “institution” and “University” mean the University of Maryland, College Park.
- (e) The term “organization” means a number of persons who have complied with University requirements for registration.
- (f) The term “reckless conduct” means action which any member of the University community can be expected to know would create a clear risk of harm to persons or property, or would disrupt the lawful activities of others, including studying, teaching, research, and University administration..<sup>3</sup> \*
- (g) The term “student” means a person taking or auditing courses at the institution either on a full- or part-time basis..<sup>4</sup>
- (h) The term “University premises” means buildings or grounds owned, leased, operated, controlled or supervised by the University.
- (i) The term “weapon” means any object or substance designed to inflict a wound, cause injury, or incapacitate, including, but not limited to, all firearms, pellet guns, switchblade knives, knives with blades five or more inches in length.
- (j) The term “University-sponsored activity” means any activity on or off campus which is initiated, aided, authorized or supervised by the University.
- (k) The terms “will” or “shall” are used in the imperative sense.

### Interpretation of Regulations

- 3. Disciplinary regulations at the University are set forth in writing in order to give students general notice of prohibited conduct. The regulations should be read broadly and are not designed to define misconduct in exhaustive terms.

### Inherent Authority

- 4. The University reserves the right to take necessary and appropriate action to protect the safety and well-being of the campus community..<sup>5</sup>

### Student Participation

- 5. Students are asked to assume positions of responsibility in the University judicial system in order that they might contribute their skills and insights to the resolution of disciplinary cases. Final authority in disciplinary matters, however, is vested in the University administration and in the Board of Regents.

### Standards of Due Process

- 6. Students subject to expulsion, suspension<sup>6</sup> or disciplinary removal from University housing<sup>7</sup> will be accorded a conduct board hearing as specified in Part 30 of this *Code*. Students subject to less severe sanctions will be entitled to an informal disciplinary conference<sup>8</sup> as set forth in Parts 32 and 33.
- 7. The focus of inquiry in disciplinary proceedings shall be the guilt or innocence of those accused of violating disciplinary regulations. Formal rules of evidence shall not be applicable, nor shall deviations from prescribed procedures necessarily invalidate a decision or proceeding, unless significant prejudice to a student respondent or the university may result..<sup>9</sup>

### Violations of Law and Disciplinary Regulations

- 8. Students may be accountable to both civil authorities and to the University for acts which constitute violations of law and of this *Code*..<sup>10</sup> Disciplinary action at the University will normally proceed during the pendency of criminal proceedings and will not be subject to challenge on the ground that criminal charges involving the same incident have been dismissed or reduced.

### Prohibited Conduct

- 9. The following misconduct is subject to disciplinary action:
  - (a) Intentionally or recklessly causing physical harm to any person on University premises or at University-sponsored activities, or intentionally or recklessly causing reasonable apprehension of such harm.
  - (b) Unauthorized use, possession or storage of any weapon on University premises or at University-sponsored activities.
  - (c) Intentionally initiating or causing to be initiated any false report, warning or threat of fire, explosion or other emergency on University premises or at University-sponsored activities.
  - (d) Off-campus misconduct which:

- i. is a criminal offense off campus, resulting in conviction, if such an offense would constitute a violation of this *Code* had it occurred on University premises. No student convicted of a misdemeanor under this section shall be subject to expulsion or full suspension unless the offense constitutes an “aggravated violation” as defined in Part 2(a) of this *Code*. The University shall not pursue disciplinary action when a non-aggravated misdemeanor does not pose a threat to the stability of the campus or campus community; provided, however,
- ii. rioting, assault, theft, vandalism, fire setting, or other serious misconduct related to a University-sponsored event, occurring on –or off-campus, that results in harm to persons or property or otherwise poses a threat to the stability of the campus or campus community may result in disciplinary action regardless of the existence, status, or outcome of any criminal charges in a court of law related to misconduct associated with a University-sponsored event.”

- (e) Knowingly violating the terms of any disciplinary sanction imposed in accordance with this *Code*.
- (f) Intentionally or recklessly misusing or damaging fire safety equipment.
- (g) Unauthorized distribution or possession for purposes of distribution of any controlled substance or illegal drug<sup>11</sup> on University premises or at University-sponsored activities.
- (h) Intentionally furnishing false information to the University.
- (i) Making, possessing, or using any forged, altered, or falsified instrument of identification on University premises, or at University-sponsored activities; making, possessing, or using any forged, altered, or falsified University document, on or off campus.
- (j) Intentionally and substantially interfering with the freedom of expression of others on University premises or at University-sponsored activities..<sup>12</sup>
- (k) Theft of property or of services on University premises or at University-sponsored activities; knowing possession of stolen property on University premises or at University-sponsored activities.
- (l) Intentionally or recklessly destroying or damaging the property of others on University premises or at University-sponsored activities.
- (m) Engaging in disorderly or disruptive conduct on University premises or at University-sponsored activities which interferes with the activities of others, including studying, teaching, research, and University administration.\*
- (n) Failure to comply with the directions of University officials, including campus police officers, acting in performance of their duties.
- (o) Violation of published University regulations or policies, as approved and compiled by the Vice President for Student Affairs..<sup>13</sup> Such regulations or policies may include the residence hall contract, as well as those regulations relating to entry and use of University facilities, sale or consumption of alcoholic beverages, use of vehicles\*\* and amplifying equipment, campus demonstrations, and misuse of identification cards.
- (p) Use or possession of any controlled substance or illegal drug on University premises or at University-sponsored activities..<sup>14</sup> \*\*\*
- (q) Unauthorized use or possession of fireworks on University premises.

\* The response of fire, police, or emergency personnel to a non-frivolous call, or action taken by them on their own initiative pursuant or non-pursuant to policy is not considered a disruption or reckless action within the meaning of this section.

\*\* Parking and traffic violations may be processed in accordance with procedures established by the Vice President for Student Affairs.

\*\*\* This charge is considered an aggravated violation as defined by Part 2 (a) and may result in suspension or expulsion from the University.

### Sanctions

- 10. Sanctions for violations of disciplinary regulations consist of:

- (a) **EXPULSION:** permanent separation of the student from the University. Notification will appear on the student's transcript. The student will also be barred from the University premises (expulsion requires administrative review and approval by the President and may be altered, deferred or withheld).
  - (b) **SUSPENSION:** separation of the student from the University for a specified period of time. Permanent notification will appear on the student's transcript. The student shall not participate in any University-sponsored activity and may be barred from University premises. Suspended time will not count against any time limits of the Graduate School for completion of a degree. (Suspension requires administrative review and approval by the Vice President for Student Affairs and may be altered, deferred or withheld).
  - (c) **DISCIPLINARY PROBATION:** the student shall not represent the University in any extracurricular activity or run for or hold office in any student group or organization. Additional restrictions or conditions may also be imposed. Notification will be sent to appropriate University offices, including the Office of Campus Programs
  - (d) **DISCIPLINARY REPRIMAND:** the student is warned that further misconduct may result in more severe disciplinary action.
  - (e) **RESTITUTION:** the student is required to make payment to the University or to other persons, groups, or organizations for damages incurred as a result of a violation of this *Code*.
  - (f) **OTHER SANCTIONS:** other sanctions may be imposed instead of or in addition to those specified in sections (a) through (e) of this part. For example, students may be subject to dismissal from University housing for disciplinary violations which occur in the residence halls. Likewise, students may be subject to restrictions upon or denial of driving privileges for disciplinary violations involving the use or registration of motor vehicles. Work or research projects may also be assigned.
11. Violations of sections (a) through (g) in Part 9 of this *Code* may result in expulsion from the University<sup>15</sup>, unless specific and significant mitigating factors are present. Factors to be considered in mitigation shall be the present demeanor and past disciplinary record of the offender, as well as the nature of the offense and the severity of any damage, injury, or harm resulting from it.
12. Violations of sections (h) through (k) in Part 9 of this *Code* may result in suspension from the University, unless specific and significant mitigating factors as specified in Part 11 are present.
13. Repeated or aggravated violations of any section of this *Code* may also result in expulsion or suspension or in the imposition of such lesser penalties as may be appropriate.
14. Any decision to impose a sanction less than suspension or expulsion for University-sponsored event-related misconduct as defined in Part 9(d)(ii) of this *Code* must be supported by written findings signed by the Vice President for Student Affairs. A student suspended under this section shall not be admitted to any other institution in the University of Maryland System during the term of the suspension. A student expelled under this section shall not be admitted to any other institution in the System for at least once year from the effective date of the expulsion.
15. Attempts to commit acts prohibited by this *Code* shall be punished to the same extent as completed violations.<sup>16</sup>
16. Penalties for off-campus misconduct shall not be more severe than for similar on-campus conduct.

### Interim Suspension<sup>(17)</sup>

17. The Vice President for Student Affairs or a designee may suspend a student for an interim period pending disciplinary proceedings or medical evaluation, such interim suspension to become immediately effective without prior notice, whenever there is evidence that the continued presence of the student on the University campus poses a substantial threat to him or herself or to others or to the stability and continuance of normal University functions.
18. A student suspended on an interim basis shall be given an opportunity to appear personally before the Vice President for Student Affairs or a designee within five business days from the effective date of the interim suspension in order to discuss the following issues only:
- (a) the reliability of the information concerning the student's conduct, including the matter of his or her identity;

- (b) whether the conduct and surrounding circumstances reasonably indicate that the continued presence of the student on the University campus poses a substantial threat to him or herself or to others or the stability and continuance of normal University functions.

### Office of Student Conduct

19. The Office of Student Conduct directs the efforts of students and staff members in matters involving student discipline. The responsibilities of the office include:
- (a) Determination of the disciplinary charges to be filed pursuant to this *Code*.
  - (b) Interviewing and advising parties<sup>18</sup> involved in disciplinary proceedings.
  - (c) Supervising, training, and advising all conduct boards.
  - (d) Reviewing the decisions of all conduct boards.<sup>19</sup>
  - (e) Maintenance of all student disciplinary records.
  - (f) Development of procedures for conflict resolution.
  - (g) Resolution of cases of student misconduct, as specified in Parts 32 and 33 of this *Code*.
  - (h) Collection and dissemination of research and analysis concerning student conduct.
  - (i) Submission of a statistical report each semester to the campus community, reporting the number of cases referred to the office, the number of cases resulting in disciplinary action, and the range of sanctions imposed.<sup>20</sup>

### Conduct Panels

20. Hearings or other proceedings as provided in the *Code* may be held before the following boards or committees:
- (a) **CONFERENCE BOARDS**, as appointed in accordance with Part 33 of this *Code*.
  - (b) **RESIDENCE BOARDS**, as established and approved by the Vice President for Student Affairs.<sup>21</sup> Students residing in group living units owned, leased, operated or supervised by the University may petition the Vice President for authority to establish conduct boards. Such boards may be empowered to hear cases involving violations of the *Code*, as prescribed by the Vice President for Student Affairs.
  - (c) **THE CENTRAL BOARD** hears cases involving disciplinary violations which are not referred to Residence Boards or resolved in accordance with Parts 32 and 33 of this *Code*. The Central Board is composed of five students, including at least two graduate students when a graduate student case is being heard.
  - (d) **THE APPELLATE BOARD** hears appeals from Residence Boards, the Central Board, and ad hoc boards, in accordance with Part 42 of this *Code*. The Appellate Board is composed of five full-time students, including at least two graduate students.
  - (e) **AD HOC BOARDS** may be appointed by the Director of Student Conduct when a Conference Board, a Residence Board, the Central Board, the Appellate Board or the Senate Adjunct Committee are unable to obtain a quorum or are otherwise unable to hear a case<sup>22</sup> Each ad hoc board shall be composed of three members, including at least one student.
  - (f) **THE SENATE COMMITTEE ON STUDENT CONDUCT** hears appeals as specified in Part 41 of this *Code*. The committee also approves the initial selection of all conduct board members, except members of conference and ad hoc boards<sup>23</sup>
21. The presiding officer of each conduct board and of the Senate Adjunct Committee on Student Conduct may develop bylaws which are not inconsistent with any provision in this *Code*. Bylaws must be approved by the Director of Student Conduct.<sup>24</sup>

### Selection and Removal of Board Members

- 22. Members of the various conduct boards are selected in accordance with procedures developed by the Director of Student Conduct.
- 23. Members of conference and ad hoc boards are selected in accordance with Parts 33 and 20 (e), respectively.
- 24. Prospective members of the Central Board and the Appellate Board are subject to confirmation by the Senate Committee on Student Conduct.
- 25. Members of the Senate Committee on Student Conduct are selected in accordance with the bylaws of the University Senate.

26. Prior to participating in board or committee deliberations, new members of the Senate Committee on Student Conduct and all conduct boards, except conference and ad hoc boards, will participate in one orientation session by the Office of Student Conduct.

27. Student members of any conduct board or committee who are charged with any violation of this *Code* or with a criminal offense<sup>25</sup> may be suspended from their judicial positions by the Director of Student Conduct during the pendency of the charges against them. Students convicted for any such violation or offense may be disqualified from any further participation in the University judicial system by the Director of Student Conduct. Additional grounds and procedures for removal may also be set forth in the bylaws of the various conduct panels.

### Case Referrals

28. Any person<sup>26</sup> may refer a student or a student group or organization suspected of violating this *Code* to the Office of Student Conduct. Allegation of off-campus event-related misconduct must be supported by a report, statement, or accusation from a law enforcement agency in whose jurisdiction the misconduct is alleged to have occurred. Persons making such referrals are required to provide information pertinent to the case and will normally be expected to appear before a conduct board as the complainant.<sup>27</sup>

### Deferral of Proceedings

29. The Director of Student Conduct may defer disciplinary proceedings for alleged violations of this *Code* for a period not to exceed 90 days. Pending charges may be withdrawn thereafter, dependent upon the good behavior of the respondent

### Hearing Referrals

30. Staff members in the Office of Student Conduct will review referrals to determine whether the alleged misconduct might result in expulsion, suspension, or disciplinary removal from University housing.<sup>28</sup> Students subject to those sanctions shall be accorded a hearing before the appropriate conduct board. All other cases shall be resolved in the Office of Student Conduct after an informal disciplinary conference, as set forth in Part 32 and 33 of this *Code*.

31. Students referred to a conduct board hearing may elect instead to have their case resolved in accordance with Parts 32 and 33. The full range of sanctions authorized by this *Code* may be imposed, although the right of appeal shall not be applicable.

### Disciplinary Conferences<sup>(29)</sup>

32. Students subject to or electing to participate in a disciplinary conference in the Office of Student Conduct are accorded the following procedural protections:

- (a) Written notice of charges at least three days prior to the scheduled conference.
- (b) Reasonable access to the case file<sup>30</sup> prior to and during the conference.
- (c) An opportunity to respond to the evidence against them and to call appropriate witnesses on their behalf.
- (d) The option to be accompanied and assisted by a representative, who may be an attorney. Representatives have the right to make opening and closing statements, to advise their clients during the course of the proceedings, and to petition for recesses. All representatives are subject to the restrictions of Parts 35 and 36 of this *Code*.

33. Disciplinary conferences shall be conducted by the Director of Judicial Programs or a designee.<sup>31</sup> Complex or contested cases may be referred by the Director to a conference board, consisting of one member of the Central Board, one member of the Appellate Board, and a staff member in the Division of Student Affairs. Conference Board members shall be selected on a rotating basis by the Director of Judicial Programs.

### Hearing Procedures

34. The following procedural guidelines shall be applicable in disciplinary hearings:

- (a) Respondents shall be given notice of the hearing date and the specific charges against them at least five days in advance and shall be accorded reasonable access to the case file, which will be retained in the Office of Student Conduct.

(b) The presiding officer of any board may subpoena witnesses upon the motion of any board member or of either party and shall subpoena witnesses upon request of the board advisor. Subpoenas must be approved by the Director of Student Conduct and shall be personally delivered or sent by certified mail, return receipt requested. University students and employees are expected to comply with subpoenas issued pursuant to this procedure, unless compliance would result in significant and unavoidable personal hardship or substantial interference with normal University activities.<sup>32</sup>

If the Director of Student Conduct or his or her designee determines that a fair hearing cannot be held without the testimony of a particular witness, and, after good faith attempts are made, the witness either fails to or refuses to appear, the disciplinary hearing will be postponed until the witness agrees to appear or the charges will be dismissed.

(c) Respondents who fail to appear after proper notice will be deemed to have pleaded guilty to the charges pending against them.

(d) Hearings will be closed to the public, except for the immediate members of the respondent's family and for the respondent's representative. An open hearing may be held, at the discretion of the presiding officer, if requested by the respondent.

(e) The presiding officer of each board shall exercise control over the proceedings to avoid needless consumption of time and to achieve the orderly completion of the hearing. Except as provided in section (o) of this Part, any person, including the respondent, who disrupts a hearing may be excluded by the presiding officer or by the board advisor.

(f) Hearings may be tape recorded or transcribed. If a recording or transcription is not made, the decision of the board must include a summary of the testimony and shall be sufficiently detailed to permit review by appellate bodies and by staff members in the Office of Student Conduct.

(g) Any party or the board advisor may challenge a board member on the grounds of personal bias. Board members may be disqualified upon majority vote of the remaining members of the board, conducted by secret ballot,<sup>33</sup> or by the Director of Student Conduct.

(h) Witnesses shall be asked to affirm that their testimony is truthful and may be subject to charges of perjury, pursuant to Part 9 (h) of this *Code*.

(i) Prospective witnesses, other than the complainant and the respondent, may be excluded from the hearing during the testimony of other witnesses. All parties, the witnesses, and the public shall be excluded during board deliberations.

(j) The burden of proof shall be upon the complainant, who must establish the guilt of the respondent by clear and convincing evidence.

(k) Formal rules of evidence shall not be applicable in disciplinary proceedings conducted pursuant to this *Code*.<sup>34</sup> The presiding officer of each board shall give effect to the rules of confidentiality and privilege, but shall otherwise admit all matters into evidence which reasonable persons would accept as having probative value in the conduct of their affairs. Unduly repetitious or irrelevant evidence may be excluded.<sup>35</sup>

(l) Respondents shall be accorded an opportunity to question those witnesses who testify for the complainant at the hearing.

(m) Affidavits shall not be admitted into evidence unless signed by the affiant and witnessed by a University employee, or by a person designated by the Director of Student Conduct.

(n) Board members may take judicial notice of matters which would be within the general experience of University students.<sup>36</sup>

(o) Board advisors may comment on questions of procedure and admissibility of evidence and will otherwise assist in the conduct of the hearing. Advisors will be accorded all the privileges of board members, and the additional responsibilities set forth in this *Code*, but shall not vote. All advisors are responsible to the Director of Student Conduct and shall not be excluded from hearings or board deliberations by any board or by the presiding officer of any board.

(p) The Director of Student Conduct may appoint a special presiding officer to any board in complex cases or in any case in which the respondent is represented by an attorney. Special presiding officers may participate in board deliberations, but shall not vote.<sup>37</sup>



- (q) A determination of guilt shall be followed by a supplemental proceeding in which either party and the board advisor may submit evidence or make statements concerning the appropriate sanction to be imposed. The past disciplinary record<sup>38</sup> of the respondent shall not be supplied to the board by the advisor prior to the supplementary proceeding.
- (r) Final decisions of all conduct panels shall be by majority vote of the members present and voting. A tie vote will result in a recommended acquittal in an original proceeding. A tie vote in an appellate proceeding will result in an affirmation of the original decision.
- (s) Final decisions of all boards, except conference boards, shall be accompanied by a brief written opinion.

### Attorneys and Representatives

35. Representatives of both complainants and respondents in hearings pursuant to this *Code* have the right to call witnesses to testify, to question in person all witnesses who appear at the hearing, to voice timely objections, to make opening and closing statements, to petition for recesses in the proceedings and to zealously and lawfully assert their client's position under the Declaration of Student Rights and the *Code of Student Conduct*.<sup>39</sup> All presenters and representatives who participate in disciplinary hearings and disciplinary conferences shall not:
- (a) Intentionally engage in conduct to disrupt a hearing;
  - (b) Intentionally attempt to improperly influence an officer of the Office of Student Conduct, a hearing advisor or member of a conduct board;
  - (c) Intentionally fail to obey a reasonably definite and specific order by a presiding officer;
  - (d) Knowingly make a false statement of material fact, law or representation of the *Code* to other participants in a hearing;
  - (e) Knowingly fail to disclose a material fact in a hearing when disclosure is necessary to avoid assisting a future criminal or fraudulent act;
  - (f) Knowingly offer false evidence, falsify evidence, counsel or induce witnesses to testify falsely, or offer improper inducements to testify;
  - (g) Recklessly and unlawfully obstruct another party's access to evidence, or alter, destroy or conceal material not protected by privilege having potential evidentiary value;
  - (h) If the representative is an attorney, otherwise fail to follow any obligations under relevant standards of professional responsibility in matters pertaining to the representation.
36. (a) Any participant in a hearing may refer complaints about suspected violations of the provisions of Part 35 of this *Code* to the Senate Committee on Student Conduct.
- (b) Within a reasonable time after such referral, the chairperson of the Senate Committee on Student Conduct will review the complaint. After review the chairperson shall dismiss complaints which are anonymous, manifestly frivolous, which cannot be reasonably construed to allege a violation of Part 35, or are based on hearsay alone. Those which are not dismissed will be referred to the full Committee which will convene a hearing no sooner than 10 business days after sending a copy of the evidence presented to the representative named in the complaint. The hearing shall be held under the relevant rules and procedures governing disciplinary hearings outlined in Parts 34-36 of this *Code*.
  - (c) A client shall not be compelled either directly or through their representative to waive the attorney-client privilege.
  - (d) Representatives found responsible for violations of the provisions of Part 35 may be suspended from the privilege of representation for such time as the Committee may deem appropriate. In addition, the Committee may refer their findings to the Attorney Grievance Commission, or other appropriate disciplinary body.
  - (e) Appeals from decisions of the Senate Committee on Student Conduct regarding violations under Part 35 may be made by parties found responsible. Appeals should be made in writing to the Senate Campus Affairs Committee within 10 business days of receipt of the letter notifying the party of the decision. Appeals will be conducted in accordance with the standards for the hearing of student disciplinary appeals. Decisions of the Campus Affairs Committee regarding these appeals shall be final.

### Student Groups and Organizations

37. Student groups and organizations may be charged with violations of this *Code*.
38. A student group or organization and its officers may be held collectively<sup>40</sup> or individually responsible when violations of this *Code* by those associated with<sup>41</sup> the group or organization have received the tacit or overt consent or encouragement of the group or organization or of the group's or organization's leaders, officers, or spokespersons.
39. The officers or leaders or any identifiable spokespersons<sup>42</sup> for a student group or organization may be directed by the Vice President for Student Affairs or a designee to take appropriate action designed to prevent or end violations of this *Code* by the group or organization or by any persons associated with the group or organization who can reasonably be said to be acting in the group's or organization's behalf. Failure to make reasonable efforts to comply with the Vice President's directive shall be considered a violation of Part 9(n) of this *Code*, both by the officers, leaders or spokespersons for the group or organization and by the group or organization itself.
40. Sanctions for group or organization misconduct may include revocation or denial of recognition or registration, as well as other appropriate sanctions, pursuant to Part 10(f) of this *Code*.

### Appeals

41. Any determination made pursuant to this *Code* resulting in expulsion or suspension<sup>43</sup> may be appealed by the respondent to the Senate Committee on Student Conduct. The Senate Committee shall also hear appeals from denials of petitions to void disciplinary records, pursuant to Part 51 of this *Code*.
42. Final decisions of residence boards, the Central Board and ad hoc boards, not involving the sanctions specified in Part 41, may be appealed by the respondent to the Appellate Board.<sup>44</sup>
43. Requests for appeals must be submitted in writing to the Office of Student Conduct within seven business days from the date of the letter notifying the respondent of the original decision. Failure to appeal within the allotted time will render the original decision final and conclusive.<sup>45</sup>
44. A written brief in support of the appeal must be submitted to the Office of Student Conduct within 10 business days from the date of the letter notifying the respondent of the original decision. Failure to submit a written brief within the allotted time will render the decision of the lower board final and conclusive.<sup>46</sup>
45. Appeals shall be decided upon the record of the original proceeding and upon written briefs submitted by the parties. De novo hearings shall not be conducted.
46. Appellate bodies may:
- (a) Affirm the finding and the sanction imposed by the original board.
  - (b) Affirm the finding and reduce, but not eliminate, the sanction, in accordance with Parts 47 and 47(a).
  - (c) Remand the case to the original board, in accordance with Parts 47 and 47(b).
  - (d) Dismiss the case, in accordance with Parts 47 and 47(c).
47. Deference shall be given to the determinations of lower boards.<sup>47</sup>
- (a) Sanctions may only be reduced if found to be grossly disproportionate to the offense.
  - (b) Cases may be remanded to the original board if specified procedural errors or errors in interpretation of University regulations were so substantial as to effectively deny the respondent a fair hearing, or if new and significant evidence became available which could not have been discovered by a properly diligent respondent before or during the original hearing.<sup>48</sup> On remand, no indication or record of the previous conduct hearing will be introduced or provided to members of the new conduct panel, except to impeach contradictory testimony at the discretion of the presiding officer. The board will be directed by the committee not to repeat the specified errors that caused the remand.
  - (c) Cases may be dismissed only if the finding is held to be arbitrary and capricious.<sup>49</sup>
  - (d) Decisions of the Appellate Board shall be recommendations to the Director of Student Conduct.<sup>50</sup> Decisions of the Senate Committee on Student Conduct shall be recommendations to the Vice President for Student Affairs. Decisions altering the determinations of all hearing boards and the Senate Committee on Student Conduct shall be accompanied by a brief written opinion.

48. The imposition of sanctions will normally be deferred during the pendency of appellate proceedings, at the discretion of the Director of Student Conduct.

### Disciplinary Files and Records

49. Case referrals may result in the development of a disciplinary file in the name of the respondent, which shall be voided if the respondent is found innocent of the charges.<sup>51</sup> The files of respondents found guilty of any of the charges against them will be retained as a disciplinary record for three years from the date of the letter providing notice of final disciplinary action.<sup>52</sup> Disciplinary records may be retained for longer periods of time or permanently, if so specified in the sanction.
50. Disciplinary records may be voided<sup>53</sup> by the Director of Student Conduct for good cause, upon written petition of respondents. Factors to be considered in review of such petitions shall include:
- the present demeanor of the respondent.
  - the conduct of the respondent subsequent to the violation.
  - the nature of the violation and the severity of any damage, injury, or harm resulting from it.
51. Denials of petitions to void disciplinary records shall be appealable to the Senate Committee on Student Conduct, which will apply the standard of review specified in Part 47 and 47(c). The requirements for appeals as set forth in Part 43 and 44 shall be applicable.<sup>54</sup>
52. Disciplinary records retained for less than 90 days or designated as “permanent” shall not be voided without unusual and compelling justification.<sup>55</sup>

### Annotations

- The University is not designed or equipped to rehabilitate or incapacitate persons who pose a substantial threat to themselves or to others. It may be necessary, therefore, to remove those individuals from the campus and to sever the institutional relationship with them, as provided in this *Code of Student Conduct* and by other University regulations.

Any punishment imposed in accordance with the *Code* may have the value of discouraging the offender and others from engaging in future misbehavior. In cases of minor disciplinary violations, the particular form of punishment may also be designed to draw upon the educational resources of the University in order to bring about a lasting and reasoned change in behavior. The underlying rationale for punishment need not rest on deterrence or “reform” alone, however. A just punishment may also be imposed because it is “deserved” and because punishment for willful offenses affirms the autonomy and integrity of the offender. The latter concept was expressed by D.J.B. Hawkins in his essay “Punishment and Moral Responsibility” in 7 *Modern Law Review* 205:

*The vice of regarding punishment entirely from the points of view of reformation and deterrence lies precisely in forgetting that a just punishment is deserved. The punishment of men then ceases to be essentially different from the training of animals, and the way is open for the totalitarian state to undertake the forcible improvement of its citizens without regard to whether their conduct has made them morally liable to social coercion or not. But merit and demerit, reward and punishment, have a different significance as applied to men and as applied to animals. A dog may be called a good dog or a bad dog, but his goodness or badness can be finally explained in terms of heredity and environment. A man, however, is a person, and we instinctively recognize that he has a certain ultimate personal responsibility for at least some of his actions. Hence merit and demerit, reward and punishment, have an irreducible individual significance as applied to men. This is the dignity and the tragedy of the human person.*

A similar view was expressed by Justice Powell, dissenting in *Goss v. Lopez* (42 L. Ed. 2d 725, 745):

*Education in any meaningful sense includes the inculcation of an understanding in each pupil of the necessity of rules and obedience thereto. This understanding is no less important than learning to read and write. One who does not comprehend the meaning and necessity of discipline is handicapped not merely in his education but throughout his subsequent life. In an age when the home and church play a diminishing role in shaping the character and value judgments of the young, a heavier responsibility falls upon the schools. When an immature student merits censure for his conduct, he is rendered a disservice if appropriate sanctions are not applied.*

- An effort is made in the *Code* to use a simplified numbering and lettering system, without use of Roman numerals or subsets of letters and numbers. Any part of the *Code* can be found by reference to one number and one letter [e.g., Part 10a explains the meaning of expulsion].

- Culpable conduct should include conscious acts posing a substantial risk or harm to others (e.g. throwing a heavy object out a tenth floor window above a sidewalk). If the act itself, however, is unintended (e.g. one is distracted by a noise while climbing a flight of stairs and drops a heavy object) the individual may have failed to use reasonable care, but is not normally deserving of the moral stigma associated with a “conviction” for a disciplinary offense.
  - Former students may be charged for violations which allegedly occurred during their enrollment at the University.
  - Colleges and universities are not expected to develop disciplinary regulations which are written with the scope of precision of a criminal *Code*. Rare occasions may arise when conduct is so inherently and patently dangerous to the individual or to others that extraordinary action not specifically authorized in the rules must be taken.
  - The terms “suspension” and “interim suspension” are to be distinguished throughout the *Code* and are not interchangeable.
  - Disciplinary removal from University housing should be distinguished from administrative removal for violations of the residence contract. The latter does not leave students with a disciplinary record and does not come under the purview of this *Code*.
  - The standard set forth here represents the minimal procedural protection to be accorded to students charged with most disciplinary violations. Students who are subject to lengthy suspensions or to expulsion may be entitled to more formal procedures, including a hearing with a right to cross-examine the witnesses against them. *Goss v. Lopez*, 419 U.S. 565 (1975).
  - The Supreme Court has recently rejected the theory that state schools are bound by principles of federal administrative law requiring agencies to follow their own regulations. *Board of Curators, University of Missouri v. Horowitz* 55 L.Ed 2d 124, 136. See, generally, “Violation by Agencies of Their Own Regulations” 87 *Harvard Law Review* 629 (1974).
  - Respondents in disciplinary proceedings may be directed to answer questions concerning their conduct. Students who refuse to answer on grounds of the Fifth Amendment privilege may be informed that the hearing panel could draw negative inferences from their refusal which might result in their suspension or dismissal. If the student then elects to answer, his/her statements could not be used against him/her in either state or federal court. *Garrity v. New Jersey*, 385 U.S. 493 (1967). See also *Furutani v. Ewigleben*, 297 F. Supp. 1163 (N.D.Cal. 1969).
  - The “controlled substances” or “illegal drugs” prohibited in this section are set forth in Schedules I through V in Article 27, Part 279 of the *Annotated Code of Maryland*.
  - Colleges and universities should be a forum for the free expression of ideas. In the recent past, however, unpopular speakers have been prevented from addressing campus audiences by students who effectively “shouted them down.” Both Yale and Stanford Universities have treated such actions (which are to be distinguished from minor and occasional heckling) as serious disciplinary violations. See the “Report from the Committee on Freedom of Expression at Yale University” which is available in the Office of Student Conduct.
- The following language from the Yale report may be used to elaborate upon the intent and scope of Part 9(j) of this *Code*.
- “There is no right to protest within a University building in such a way that any University activity is disrupted. The administration, however, may wish to permit some symbolic dissent within a building but outside the meeting room, for example, a single picket or a distributor of handbills.”
  - “[A] member of the audience may protest in silent, symbolic fashion, for example, by wearing a black arm band. More active forms of protest may be tolerated such as briefly booing, clapping hands or heckling. But any disruptive activity must stop [and not be repeated] when the chair or an appropriate University official requests silence.
  - “Nor are racial insults or any other ‘fighting words’ a valid ground for disruption or physical attack... The banning or obstruction of lawful speech can never be justified on such grounds as that the speech or the speaker is deemed irresponsible, offensive, unscholarly, or untrue.”
- A compilation of published regulations which have been reviewed and approved by the Vice President shall be available for public inspection during normal business hours in the Office of Student Conduct.
  - The “controlled substances” or “illegal drugs” prohibited in this section are set forth in Schedules I through V in Article 27, Part 279 of the *Annotated Code of Maryland*.

15. This Part and Parts 12 and 13 represent an attempt to give needed guidance to those who are assessing penalties. Moreover the direction of the guidance is toward imposition of more severe disciplinary sanctions in serious cases. Nonetheless, the language concerning "mitigating factors" is broad enough to give decision-makers considerable leeway to "do justice," depending upon the facts in each case. The burden of establishing facts in mitigation should, of course, be upon the respondent.
16. There does not seem to be any rational basis for imposing less severe penalties for attempts than for completed violations. The authors of the *Model Penal Code*, for example, have written that:  
*To the extent that sentencing depends upon the antisocial disposition of the actor and the demonstrated need for a corrective action, there is likely to be little difference in the gravity of the required measures depending on the consummation or the failure of the plan.* See LaFare, *Criminal Law Treatise* p. 453.
17. These procedures are analogous to those found in the "emergency" disciplinary rules adopted by the Board of Regents in 1971 and are consistent with the formal opinion of the Maryland Attorney General on this subject, dated January 23, 1969. See also *Goss v. Lopez*, 419 U.S. 565 (1975).  
  
Nothing in this provision would prohibit the Vice President from modifying the terms of an interim suspension, so long as the hearing requirement specified in Part 18 was met. For example, a suspended student might be allowed to enter University premises solely for the purpose of attending classes.
18. Staff members in the Office of Student Conduct should endeavor to arrange a balanced presentation before the various conduct boards and may assist both complainants and respondents.
19. This language does not effect any change in previous policy concerning the powers of conduct boards. All board decisions, including those rendered by Conference Boards, shall be treated as recommendations.
20. See Annotation 1, *supra*. The deterrent effect of punishment is diminished if the community is unaware of the number and general nature of sanctions imposed. The Director of Student Conduct may, for example, arrange for publication of the statistical report in the campus press each semester.
21. Boards established pursuant to this section might include modified versions of the present "Greek" or residence hall boards.
22. It is intended that a quorum will consist of three members (out of five). The authority to appoint ad hoc boards should be broadly construed and might be especially useful, for example, when a conduct board or the Senate Committee is charged with hearing a case involving one of its own members. The final determination as to whether a panel is "unable to hear a case" should be within the discretion of the Director of Student Conduct.
23. The power of confirmation represents a significant grant of authority to the Senate Committee. The committee is presently underutilized and might best contribute to the judicial system by becoming more involved with it. Moreover, confirmation procedures will give committee members direct contact with board members and will also allow the committee to exercise more control over the quality of Conduct Board decisions.
24. Proposed bylaws must be submitted to the Attorney General for review.
25. It could be a public embarrassment for the University to have a student charged with or convicted of a serious crime sit in judgment over other students in disciplinary proceedings. The various state criminal Codes are usually so broad and archaic, however, that automatic suspension or removal should not result from any violation of any law (e.g., New York makes it a criminal misdemeanor for anyone "to dance continuously in a dance contest for 12 or more hours without respite").
26. Case referrals should not be limited to members of the "campus community." A student who assaults another person on campus should not escape University judicial action merely because the person assaulted was a visitor (or, as in a recent case, a former student who had just withdrawn from the University).
27. The Director of Student Conduct may appoint a trained volunteer from the campus community to serve as the complainant. It would be preferable, however, to employ a "community advocate" to present all disciplinary cases.  
  
Several measures in the *Code* are designed to restore balance in disciplinary proceedings, even in those cases in which the complainant is inexperienced with administrative adjudication:  
  - (a) A hearing officer may be appointed in complex or serious cases. See Part 34(p).

(b) The role of attorneys or advisors may be restricted. See Parts 35 and 36, and Annotation 39.

(c) The "disciplinary conference" procedure is designed to eliminate adversary proceedings in minor cases. See Parts 32-33 and Annotation 29.

28. Staff members may consider the mitigating factors specified in Part 11 to determine the permissible sanction to be imposed if the respondent is found guilty of charges. For example, a student involved in a minor altercation might be charged pursuant to Part 9(a), but referred to a disciplinary conference, thereby precluding the possibility of expulsion or suspension for the alleged misconduct.

29. The hearing procedures specified at Part 34 need not be followed in disciplinary conferences. Instead a disciplinary conference would normally consist of an informal, nonadversarial meeting between the respondent and a staff member in the Office of Student Conduct. Complainants would not be required to participate, unless their personal testimony was essential to the resolution of a dispositive factual issue in the case. Documentary evidence and written statements could be relied upon, so long as respondents are given access to them in advance and allowed to respond to them at the conference. Respondents would also be allowed to bring appropriate witnesses with them and might be accompanied by a representative, who may participate in discussions, although not in lieu of participation by the respondent.

The conference procedure is designed to reduce the steady growth of unnecessary legalism in disciplinary proceedings. The worst features of the adversary system (including the concept that judicial proceedings are a "contest" to be "won by clever manipulation of procedural rules) undermine respect for the rule of law. Colleges and universities can and should be a testing ground for development of carefully reasoned alternatives to current procedural excesses in the larger society.\*\*

Procedures comparable to the disciplinary conference (referred to as "structured conversations") are suggested by David L. Kirp in his 1976 article "Proceduralism and Bureaucracy: Due Process in the School Setting" 38 *Stanford Law Review* 841.

*The benefits of such conversations in the school setting may better be appreciated by contrasting them with the typical due process hearing. Hearings are designed to determine the facts of a particular controversy, and apply predetermined rules to the facts thus found. At that point, the function of the hearing is at an end. The wisdom of the underlying substantive rules has no relevance, nor is broader discussion of grievances generally encouraged, unless it is somehow pertinent to the dispute at hand.*

*Conversation knows no such limits. It too serves as a vehicle for resolving what are likely to be factually uncomplicated disputes, but it does more than that. It enables students to feel that they are being listened to and may encourage them to raise underlying grievances. It provides administrators with a relatively inexpensive vehicle for monitoring, and hence a basis for reshaping institutional relationships. The outcome of these 'orderly thoughtful conversations' may well be decisions different in their particulars from what might otherwise have been anticipated; repeated conversations which touch upon similar student grievances may ultimately lead disciplinarians to reassess whether control is so vital, and collaboration so improbable, as a means of assuring institutional order.*

The conference procedure would not be used in any case which might result in any form of separation from the University. Accordingly, the procedure appears to meet or exceed the due process requirements set forth by the United States Supreme Court for cases involving suspensions of ten days or less. In *Goss v. Lopez* the Court held:

*[W]e stop short of construing the Due Process Clause to require, countrywide, that hearings in connection with short suspensions must afford the student the opportunity to secure counsel, to confront and cross-examine witnesses supporting the charge, or to call his own witnesses to verify his version of the incident. Brief disciplinary suspensions are almost countless. To impose in each such case even truncated trial-type procedures might well overwhelm administrative facilities in many places and, by diverting resources, cost more than it would save in educational effectiveness. Moreover, further formalizing the suspension process and escalating its formality and adversary nature may not only make it too costly as a regular disciplinary tool but also destroy its effectiveness as part of the teaching process.*

*On the other hand, requiring effective notice and an informal hearing permitting the student to give his version of the events will provide a meaningful hedge against erroneous action. At least the disciplinarian will be alerted to the existence of disputes about facts and arguments about cause and effect. He may then determine himself to summon the accuser, permit cross-examination, and allow the student to present his own witnesses. In more difficult cases, he may permit counsel. In any event, his discretion will be more informed and we think the risk of error substantially reduced (42 L. Ed. 725, 740).*

30. The case file consists of materials which would be considered "education records," pursuant to the Family Educational Rights and Privacy Act. Personal notes of University staff members or complainants are not included.
31. Determinations made in accordance with Parts 32 and 33 are not appealable.
32. Internal subpoenas may be desirable, since cases have arisen in which complainants or respondents were unable to present an effective case due to the indifference and lethargy of potential witnesses. A student who refused to respond to a subpoena may be charged with a violation of Part 9(n) of the Code. The Director of Student Conduct should not approve a subpoena unless the expected testimony would be clearly relevant. Likewise, a subpoena designed to embarrass or harass a potential witness should not be authorized. The subpoena power specified here is not designed to reach documents or other materials.
33. Board members should be disqualified on a case basis only; permanent removal should be accomplished in accordance with Part 27. Board members should not be readily disqualified. The term "personal bias" involves animosity toward a party or favoritism toward the opposite party. See, generally, Davis, *Administrative Law Treatise* "Bias" Section 12.03.
34. The exclusionary rule generally does not apply to civil administrative proceedings. Furthermore, the University of Maryland is exempted by statute from the applicable portions of the Administrative Procedure Act. The Maryland Court of Appeals, however, has barred evidence from administrative proceedings where a respondent establishes that officials were improperly motivated to illegally seize the evidence. See *Sheetz v. City of Baltimore*, 315 Md. 208 (1989).
35. Testimony containing hearsay may be heard, if relevant. A final determination should not be based on hearsay alone.
36. Every statement or assertion need not be proven. For example, board members may take notice that many students commute to the University.
37. Student presiding officers are often at a disadvantage when the respondent is represented by an attorney. The proceedings might progress more rapidly and efficiently if a special presiding officer were appointed. Generally, a staff member in the Office of Student Conduct would be selected for such a responsibility, although other University employees with legal training might also be called upon.
38. Information pertaining to prior findings of disciplinary and residence hall violations might be reported, as well as relevant criminal convictions. Prior allegations of misconduct should not be disclosed.
39. The dynamics of a judicial hearing in a University setting are not the same as those of a courtroom. Strict adherence to the conventions of courtroom advocacy may not be in the best interest of clients in University judicial proceedings.

The presiding officer and the board advisor are authorized to take reasonable measures to maintain control over the proceedings in order to elicit relevant facts, to prevent the harassment of participants, to insure that proceedings are not disrupted and the interests of fairness are served. This may include regulating the timing, length and manner of presentations and objections, declaring recesses in the proceedings, and other appropriate actions. Presiding officers should have training and experience appropriate to the demands of the office.

Before hearings, presenters for both complainants and respondents shall be presented with a written statement approved by the Senate Committee on Student Conduct regarding their rights and obligations during hearings and the powers of the presiding officer to control behavior in hearings.

40. Punishment of one or several individuals for the acts of others should be avoided if the identities of the specific offenders can be readily ascertained.
41. Association does not require formal membership. Individuals who might reasonably be regarded as regular participants in group or organization activities may be held to be associated with the group or organization.

42. Leaders or spokespersons need not be officially designated or elected. For example, if a group or organization accepted or acquiesced in the act or statement of an individual associated with it, that individual might reasonably be regarded as a leader or a spokesman for the group or organization.
43. "Suspension" includes deferred suspension but not interim suspension or suspension which is withheld. See Annotation 6.
44. Students left with a disciplinary record after a disciplinary conference may request that their record be voided, in accordance with Part 49. Denials may be appealed, pursuant to Part 51.
45. The decision will be "final and conclusive" on the part of the conduct board, but will remain a recommendation to the Director of Student Conduct.
46. This Part is intended to discourage frivolous appeals. Respondents who are genuinely interested in pursuing an appeal can reasonably be expected to prepare a written brief.
47. Appellate bodies which do not give deference (i.e., a presumption of validity) to lower board decisions will distort the entire disciplinary system. Respondents would be encouraged to "test their strategy" and "perfect their technique" before lower boards, since the matter would simply be heard again before a "real" board with final authority.  
  
Lower board members usually have the best access to the evidence, including an opportunity to observe the witnesses and to judge their demeanor. Members of appellate bodies should be especially careful not to modify a sanction or to remand or dismiss a case simply because they may personally disagree with the lower board's decision.
48. Respondents who obtain information at the hearing which might lead to new evidence are required to request an adjournment rather than wait to raise the matter for the first time on appeal.
49. An arbitrary and capricious decision would be a decision "unsupported by any evidence." The cited language has been adopted by the Federal Courts as the proper standard of judicial review, under the due process clause, of disciplinary determinations made by the state boards or agencies. See *McDonald v. Board of Trustees of the University of Illinois*, 375 F. Supp. 95, 108 (N.D. Ill., 1974).
50. See Annotation 19.
51. Voided files will be so marked, shall not be kept with active disciplinary records, and shall not leave any student with disciplinary record.
52. Disciplinary records may be reported to third parties, in accordance with University regulations and applicable state and federal law.
53. Void records shall be treated in the manner set forth in Annotation 51.
54. The scope of review shall be limited to the factors specified at Part 50. An inquiry into the initial determination of guilt or innocence is not permitted. For example, when considering the "nature" of the violation, pursuant to Part 50 (c), it is to be assumed that the violation occurred and that the respondent was responsible for it.
55. Some discretion must be retained to void even "permanent" disciplinary records. It may be unnecessary, for example, to burden a graduating senior with a lifelong stigma for an act committed as a freshman. Social norms also change rapidly. "Unacceptable" conduct in one generation may become permissible and commonplace in the next.

\* See the procedures for mandatory medical withdrawal developed by the Vice President for Student Affairs

\*\* See Macklin Fleming, *The Price of Perfect Justice*: "in our pursuit of . . . perfectibility, we necessarily neglect other elements of an effective procedure, notably the resolution of controversies within a reasonable time at a reasonable cost, with reasonable uniformity . . . we impair the capacity of the legal order to achieve the basic values for which it is created, that is, to settle disputes promptly and peaceably, to restrain the strong, to protect the weak, and to conform the conduct of all the settled rules of law."

\*\*\* See the due process standard set forth in *Dixon v. Alabama*, 294 F.2d 150, 158-159 (Fifth Cir., 1961), Cert. den 368 U.S. 930.

## Appendix D: University Policy on Disclosure of Student Records – Family Educational Rights and Privacy Act

*Approved by President, 1 August 1991;  
updated April 15, 1996, June 2, 1997, and October 1, 2002  
by President's Legal Office.*

### I. POLICY

- A. It is the policy of UMCP to comply with the requirements of the Federal Family Educational Rights and Privacy Act, known as the Buckley Amendment, concerning the disclosure of student records. Following is an outline of the policy, and an explanation of the procedures by which students may obtain access to education records. A copy of this policy shall be furnished annually to each student with registration materials.

### II. DEFINITIONS

#### A. "Attendance"

"Attendance" includes but is not limited to attendance in person or by correspondence; and the period during which a person is working under a work-study program.

#### B. "Directory Information"

"Directory Information" means information which would generally not be considered harmful or an invasion of privacy if disclosed. It includes, but is not limited to, a student's name, address, telephone listing, e-mail address, date and place of birth, major field of study, full-time/part-time status, participation in officially recognized activities and sports, weight and height of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended.

#### C. "Disclosure"

"Disclosure" means to permit access to or the release, transfer, or other communication of education records to any party by any means, including oral, written, or electronic means.

#### D. "Education Records"

"Education Records" means those records maintained by UMCP which contain information directly related to a student except:

- (1) Records made by instructors, professors, and administrators for their own use, and not shown to others.
- (2) Records maintained by UMCP Police solely for law enforcement purposes and kept separately from the education records described above.
- (3) Records of employment which relate exclusively to the individual in that individual's capacity as an employee, and are not available for use for any other purpose.  
(NOTE: If a currently enrolled student is employed as a result of his or her status as a student, records relating to that employment are education records.)
- (4) Records on a student who is eighteen years of age or older made by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional made or used only for treatment purposes and available only to persons providing treatment.  
(NOTE: Treatment for the purposes of this definition does not include remedial educational activities.)
- (5) Alumni records which contain only information relating to a person's activities after that person is no longer a student at UMCP and do not relate to that person as a student.

**"Parent"** means a parent of a student, and includes a natural or adoptive parent, a guardian, or, in the absence of natural or adoptive parents, an individual acting as a parent.

**"Party"** means an individual, agency, institution, or organization.

**"Personally identifiable information"** means a student's name, a name of a student's parent or family members, an address of a student or a student's family, a personal identifier, such as a social security number or student number, a list of personal characteristics or any information that would make a student's identity traceable.

**"Record"** means any information recorded in any way including but not limited to handwriting, print, tape, film, microfilm, and microfiche.

**"Student"** means any individual who is or has been in attendance at UMCP and on whom education records are maintained.

### III. RIGHT OF ACCESS

Each student in attendance at UMCP has a right to inspect and review his or her education records.

#### A. Procedure

- (1) Form of Request  
Requests for access to education records must be made in writing, signed by the student, and must include the student's social security number.
- (2) Place of Request  
Requests are made to:  
Registrar's Office  
Mitchell Building  
College Park, Maryland 20742-5231
- (3) Response by UMCP  
UMCP will comply with a request for access within a reasonable time, not to exceed 45 days. Whenever possible, arrangements shall be made for the student to read his or her records in the presence of a staff member.
- (4) Reproduction of Records  
A student may ordinarily obtain copies of education records by paying the cost of reproduction. The fee for photocopies is \$.25 per page. There is no charge for staff time to search for or collect education records. Only copies of a student's current UMCP transcript will be provided. Official University of Maryland transcripts with the seal of the University will be provided at a higher cost.

#### B. Procedure

##### Types and Locations of Education Records Maintained at UMCP

(NOTE: All requests must be routed through the Registrar's Office.)

- (1) Admissions  
Applications and transcripts from institutions previously attended.  
a. Undergraduate:  
Director of Admissions  
Mitchell Building  
b. Graduate:  
Director of Graduate Records  
Lee Building
- (2) Registrations  
All on-going academic and biographical records, undergraduate and graduate:  
Director of Registrations  
Mitchell Building
- (3) Departments  
Departmental Offices  
Chair of the Department
- (4) Deans  
Miscellaneous records  
Dean's office of each school
- (5) Resident Life  
Student's housing records  
Director of Resident Life
- (6) Advisors  
Letters of evaluation, personal information sheet, transcript, test scores (with student permission).  
Pre-law advisor: Hornbake Library  
Pre-dental advisor: Hornbake Library  
Pre-medical advisor: Hornbake Library
- (7) Judicial Affairs  
Student's judicial and disciplinary records  
Director of Judicial Programs  
Mitchell Building
- (8) Counseling Center  
Biographical data, summaries of conversations with students, test results  
Director  
Shoemaker Hall  
(NOTE: Where records are used only for treatment purposes, they are not education records and are not subject to this policy.)

**(9) Financial Aid**

Financial Aid applications, needs analysis statements, awards made

Undergraduate:  
Director of Financial Aid  
Lee Building

Graduate:  
Deans' Offices

(NOTE: There is no student access to parents' confidential statements.)

**(10) Career Development Center**

Recommendations, unofficial copies of academic records

Director  
Hornbake Library

**(11) Office of the Bursar**

Student accounts receivable, records of students' financial charges and credits with UMCP

Bursar  
Lee Building

**C. Waiver of Access to Confidential Recommendations**

A student may waive the right of access to confidential recommendations in the following areas:

- (1) admission to any educational institution;
- (2) job placement;
- (3) receipt of honors and awards.

The waiver must be in writing, and UMCP shall not require such waivers as a condition to admission, or the receipt of any service or benefit. If right of access is waived, a student will be notified, upon written request, of the names of all persons making confidential recommendations. Such recommendations shall be used only for the purpose for which they were specifically intended. A waiver may be revoked in writing at any time, and will only apply to subsequent recommendations.

**IV. DISCLOSURE OF PERSONALLY IDENTIFIABLE INFORMATION**

It is the policy of UMCP to limit disclosure of personally identifiable information without a student's prior written consent, subject to the following limitations and exceptions:

**A. Directory Information (defined above)**

- (1) This information may be disclosed and may appear in public documents unless a student files a written notice not to disclose any or all of the information within three weeks of the first day of the semester in which the student begins each year. This notice must be filed annually with the Registrar's Office within the allotted time to avoid automatic disclosure of directory information.
- (2) Students will be given annual notice of the categories of information designated as directory information.

**B. Prior Consent Not Required**

Prior consent is not required for disclosure of education records to the following parties:

- (1) School officials of UMCP who are or may be in a position to use the information in furtherance of a legitimate educational objective.  
A school official is:
  - a. A person employed by the University of Maryland System in an administrative, supervisory, academic, research or support staff position.
  - b. A member of the Board of Regents.
  - c. A person employed by or under contract to the University to perform a special task, such as an attorney or auditor.
 A school official has a legitimate educational interest if the official is:
  - a. Performing a task that is specified in his or her position description or by a contract agreement.
  - b. Performing a task related to a student's education.
  - c. Performing a task related to the discipline of a student.

- d. Providing a service or benefit relating to the student's family, such as health care, counseling, job placement, or financial aid.

- (2) Officials of other schools in which a student seeks or intends to enroll or is enrolled. A student will be provided with a copy of the records which have been transferred upon request and payment of copying fees as described above.
- (3) Authorized representatives of the Comptroller General of the United States, the Secretary of Education, the Commissioner of the Office of Education, the Director of the National Institute of Education, the Administrator of the Veterans' Administration, the Assistant Secretary of Education, and State educational authorities, but only in connection with the audit or evaluation of federally supported education programs, or in connection with the enforcement of or compliance with federal legal requirements relating to these programs. Subject to controlling federal law, these officials will protect information received so as not to permit personal identification of students to outsiders.
- (4) Authorized persons and organizations who are given work in connection with a student's application for or receipt of financial aid to the extent necessary.
- (5) State and local officials to which such information is required to be reported by effective state law adopted prior to November 19, 1974.
- (6) Organizations conducting education studies for the purpose of developing, validating, or administering predictive tests, administering student programs, and improving instruction. The studies shall be conducted so as not to permit personal identification of students to outsiders, and the information is to be destroyed when no longer needed for these purposes.
- (7) Accrediting organizations for purposes necessary to carry out their functions.
- (8) Parents of a student who is dependent for income tax purposes.
- (9) Appropriate parties in connection with an emergency, where knowledge of the information is necessary to protect the health or safety of the student or other individuals.
- (10) In response to a court order or subpoena. Unless the issuing entity orders the university against prior notification, the university will make reasonable efforts to notify the student before complying with the court order.
- (11) To an alleged victim of any crime of violence of the results of any institutional disciplinary proceedings against the alleged perpetrator of that crime with respect to that crime.

**C. Prior Consent Required In All Other Cases**

UMCP will not release personally identifiable information in education records, or allow access to those records without prior consent from the student. The consent must be in writing, signed by the student, and dated. The student must specify the records to be disclosed, the identity of the recipient, and the purpose of the disclosure. A copy of the record disclosed will be provided to the student upon request and payment of copy fees described above.

**D. Record of Disclosures****(1) Maintenance of List**

UMCP shall maintain a list of each request and each disclosure of personally identifiable information with each student's education records. The list shall include:

- a. the parties who have requested or received the information;
- b. the legitimate interest the parties had in requesting or receiving the information.

**(2) Inspection of List**

The list of disclosures may be inspected by:

- a. the student;
- b. the official custodian of the record; and
- c. other UMCP and governmental officials.

**(3) Exceptions**

The following disclosures are not listed:

- a. disclosures to the student;
- b. disclosures pursuant to written consent;
- c. disclosures to instructional or administrative officials of UMCP;
- d. disclosures of directory information.

## V. CORRECTION OF EDUCATION RECORDS

It is the policy of UMCP to provide students the opportunity to seek corrections to education records which are believed to be inaccurate, misleading, or which violate the right to privacy or other rights.

### A. Request to Correct an Education Record

- (1) A request must be in writing to the Registrar's Office.
- (2) A request must contain:
  - a. the specific document(s) being challenged; and
  - b. the basis for the challenge.
- (3) UMCP shall decide within a reasonable time whether to amend the document(s). The student shall be notified of the decision in writing, and if the decision is to refuse to amend, the student shall be notified of the right to a hearing.

### B. Right to a Hearing

Upon request, a student shall be provided an opportunity for a hearing to challenge the content of education records. A request for a hearing must be made in writing to the Registrar's Office. Within a reasonable time, the student shall be notified in writing of the date, place, and time. The student shall be given reasonable advance notice of the hearing.

### C. Conduct of Hearing

- (1) The hearing shall be conducted by a UMCP official with no direct interest in the outcome.
- (2) The student shall have a full and fair opportunity to present evidence, and may be represented by individuals of his or her choice, including an attorney. The cost for such representation shall be the responsibility of the student.

### D. Decision

- (1) The student shall be notified in writing within a reasonable amount of time.
- (2) The decision is to be based solely upon evidence presented at the hearing, and must include a summary of the basis of the decision.
- (3) In cases where the challenged information is found to be inaccurate, misleading, or otherwise in violation of the privacy or other rights of the student, the education records shall be amended accordingly within a reasonable time.
- (4) In cases where the challenged information is not found to be inaccurate, misleading, or otherwise in violation of the privacy or other rights of a student, the student shall be informed in writing of the right to place in the challenged record a statement commenting on the information and explaining any reasons for disagreeing with the decision.
- (5) The statements described above shall be kept as part of the student's record and disclosed whenever that portion of the record is disclosed.

## VI. RIGHT TO FILE A COMPLAINT

Student alleging noncompliance with the Family Educational Rights and Privacy Act may file a complaint with the Department of Education, 600 Independence Avenue, S.W., Washington, D.C. 20202-4605.

## Appendix E: Smoking Policy and Guidelines

*Approved by the President  
March 6, 1993  
Amended September 24, 2001*

### A. Policy

UMCP has found that a significant percentage of faculty, staff and students do not smoke, smoke is offensive to many non-smokers, it is harmful and even debilitating to some individuals due to their physical condition, and there is evidence suggesting that passive smoke inhalation is harmful to non-smokers. In response to the above considerations, it is hereby established as the policy of UMCP to achieve a public facility environment as close to smoke-free as practicably possible. Obtaining and maintaining this result will require the willingness, understanding, and patience of all members of the Campus community.

It is the policy of UMCP to follow all federal, state, or local laws regarding smoking. This Smoking Policy is in addition to any such policies which may be in effect.

### B. Guideline

1. Smoking is prohibited in indoor locations.
2. Smoking is prohibited outside of buildings within 15 feet of any building entrance, air intake duct or window.

### C. Implementation

Unit heads, or their designees, are responsible for:

1. Assuring that this policy is communicated to everyone within their jurisdiction and to all new members of the Campus community.
2. Implementing the policy and guideline and assuring that appropriate notice is provided.
3. Developing guidelines to embrace all special circumstances in the campus is impossible. If unit heads find circumstances in their areas that they believe warrant exception from particular provisions in this Smoking Policy and Guidelines, they may address requests for specific local exceptions to the President or his or her designee.

### D. Compliance

This policy relies on the thoughtfulness, consideration, and cooperation of smokers and non-smokers for its success. It is the responsibility of all members of the Campus community to observe this Smoking Policy and Guideline.

Complaints or concerns regarding this policy or disputes regarding its implementation should be referred to the immediate supervisor for resolution. If a resolution cannot be reached, the matter will be referred by the supervisor to the appropriate department head or vice president for mediation.

### E. Review

The provisions and guidelines attaching to this Smoking Policy shall be subject to future review and revision to ensure that the objective is obtained. Especial attention shall be given to determining if voluntary compliance without disciplinary sanctions has proven satisfactory.

## Appendix F: Academic Integrity

The academic regulations and requirements of the University of Maryland, College Park, are designed to provide and enhance a maximum educational environment for the entire campus academic community. The success of the design depends upon the mutual respect, courteous treatment, and consideration of everyone involved. The following statements contain procedures and expectations for both faculty and students. For questions about the interpretation of these statements, students should contact their academic advisor, department chair, or dean.

### Resolution on Academic Integrity

*Approved by Board of Regents  
May 8, 1981*

WHEREAS, it is the responsibility of the University of Maryland to maintain integrity in teaching and learning as a fundamental principle on which a university is built; and

WHEREAS, all members of the university community share in the responsibility for academic integrity; therefore

BE IT RESOLVED, that the University of Maryland Board of Regents hereby adopts the following Statement of Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity.

### Statement of Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity

#### Preamble

At the heart of the academic enterprise are learning, teaching, and scholarship. In universities these are exemplified by reasoned discussion between student and teacher, a mutual respect for the learning and teaching process, and intellectual honesty in the pursuit of new knowledge. In the traditions of the academic enterprise, students and teachers have certain rights and responsibilities which they bring to the academic community. While the following statements do not imply a contract between the teacher or the university and the student, they are nevertheless conventions which the university believes to be central to the learning and teaching process.

#### Faculty Rights and Responsibilities

1. Faculty shall share with students and administration the responsibility for academic integrity.
2. Faculty are accorded freedom in the classroom to discuss subject matter reasonably related to the course. In turn they have the responsibility to encourage free and honest inquiry and expression on the part of students.

3. Faculty are responsible for the structure and content of their courses, but they have the responsibility to present courses that are consistent with their descriptions in the university catalog. In addition, faculty have the obligation to make students aware of the expectations in the course, the evaluation procedures, and the grading policy.
4. Faculty are obligated to evaluate students fairly and equitably in a manner appropriate to the course and its objectives. Grades shall be assigned without prejudice or bias.
5. Faculty shall make all reasonable efforts to prevent the occurrence of academic dishonesty through the appropriate design and administration of assignments and examinations, through the careful safeguarding of course materials and examinations, and through regular reassessment of evaluation procedures.
6. When instances of academic dishonesty are suspected, faculty shall have the right and responsibility to see that appropriate action is taken in accordance with university regulations.

#### **Student Rights and Responsibilities**

1. Students shall share with faculty and administration the responsibility for academic integrity.
2. Students shall have the right of inquiry and expression in their courses without prejudice or bias. In addition, students shall have the right to know the requirements of their courses and to know the manner in which they will be evaluated and graded.
3. Students shall have the obligation to complete the requirements of their courses in the time and manner prescribed and to submit to evaluation of their work.
4. Students shall have the right to be evaluated fairly and equitably in a manner appropriate to the course and its objectives.
5. Students shall not submit as their own work any work which has been prepared by others. Outside assistance in the preparation of this work, such as librarian assistance, tutorial assistance, typing assistance, or such assistance as may be specified or approved by the instructor is allowed.
6. Students shall make all reasonable efforts to prevent the occurrence of academic dishonesty. They shall by their own example encourage academic integrity and shall themselves refrain from acts of cheating and plagiarism or other acts of academic dishonesty.
7. When instances of academic dishonesty are suspected, students shall have the right and responsibility to bring this to the attention of the faculty or other appropriate authority.

#### **Institutional Responsibility**

1. Campuses or appropriate administrative units of the University of Maryland shall take appropriate measures to foster academic integrity in the classroom.
2. Campuses or appropriate administrative units shall take steps to define acts of academic dishonesty, to ensure procedures for due process for students accused or suspected of acts of academic dishonesty, and to impose appropriate sanctions on students guilty of acts of academic dishonesty.
3. Campuses or appropriate administrative units shall take steps to determine how admission or matriculation shall be affected by acts of academic dishonesty on another campus or at another institution. No student suspended for disciplinary reasons at any campus of the University of Maryland shall be admitted to any other University of Maryland campus during the period of suspension.

AND, BE IT FURTHER RESOLVED, that campuses or appropriate administrative units of the University of Maryland will publish the above Statement of Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity in faculty handbooks and in student handbooks and catalogs; and

BE IT FURTHER RESOLVED, that the Board of Regents hereby directs each campus or appropriate administrative unit to review existing procedures or to implement new procedures for carrying out the institutional responsibilities for academic integrity cited in the above Statement; and

BE IT FINALLY RESOLVED, that the Board of Regents hereby directs each campus or appropriate administrative unit to submit to the President or designee for approval the campus' or unit's procedure for implementation of the institutional responsibility provisions of the above Statement.

## **Appendix G: Statute of Limitations for the Termination of Degree Programs**

*Committee on Academic Procedures and Standards  
Approved December 7, 1989*

The following policies apply to all undergraduate degree programs terminated at the University of Maryland at College Park at the beginning of the Spring, 1990 Semester and thereafter.

1. All students enrolled at the University of Maryland, College Park or at a Maryland community college program articulated with the terminated degree program during the semester in which the program is terminated must complete the major requirements of the terminated degree program within five calendar years of the date upon which the program is terminated. If only a few students are enrolled in a terminated program, a shorter time limit may be imposed based on a study of the academic records of all students enrolled in the program. If a shorter time period is imposed, all students enrolled in the program will be notified of its length.
2. Students who, prior to the termination date had been enrolled in the terminated program or a Maryland community college articulated with the terminated program, but who subsequently interrupt their studies at the University of Maryland, College Park or the community college for one or more semesters will be allowed to enter or re-enter the program only if a careful analysis of their records by the appropriate dean indicates they will be able to complete the major requirements of the terminated program within the remaining time period specified.
3. When a program is terminated the University of Maryland, College Park will make a good faith effort to notify those students who had interrupted their studies in that program. As part of that good faith effort, the University of Maryland at College Park will publish in its re-enrollment forms, catalogues, and schedules of classes a statement advising returning students that programs may have been terminated and that the student needs to check the current status of the program.
4. At the end of the time period specified for completion of major requirements after the termination date of the program, the relevant department or college will evaluate the records of each student enrolled in the program for fulfillment of departmental major requirements and will notify students whether they have completed these requirements. Such notice shall be in writing and sent to the student's last known addresses.
5. When a degree program is terminated, the university will send notification of the time limit for completion of the major requirements to all students enrolled in the program at that time. It will also attempt to send notification to students who interrupted their studies while enrolled in the program in the preceding three years, insofar as such students can reasonably be identified. This notification will be sent to the students' last known addresses on file with the university. Such notifications also will be sent to the Maryland community colleges having programs articulated with the terminated program.

## **Appendix H: VIII-2.70 Policy on Student Classification for Admission, Tuition and Charge-Differential Purposes**

*USM Bylaws, Policies and Procedures of the Board of Regents  
Approved by the Board of Regents August 28, 1990;  
Amended July 10, 1998;  
Amended November 27, 2000;  
Amended April 11, 2003*

### **I. Policy**

It is the policy of the Board of Regents of the University System of Maryland (USM) to recognize the categories of In-State and Out-of-State students for the purpose of admission, tuition, and charge differentials at those institutions where such differentiation has been established.

- A. An In-State student is a student whom the University determines to be a permanent resident of the State of Maryland. For the purposes of this Policy, "permanent resident" is defined as a person who satisfies all the following conditions and has done so for at least twelve (12) consecutive months immediately prior to and including the last date available to register for courses in the semester/term for which the person seeks In-State Status:
  1. Is not residing in the State of Maryland primarily to attend an educational institution; and,



2. Owns and continuously occupies or rents and continuously occupies living quarters in Maryland. "There must exist a genuine deed or lease in the individual's name reflecting payments/rents and terms typical of those in the community at the time executed. Persons not having such a lease may submit an affidavit reflecting payments/rents and terms as well as the name and address of the person to whom payments are made which may be considered as meeting this condition." As an alternative to ownership or rental of living quarters in Maryland, a student may share living quarters in Maryland which are owned or rented and occupied by a parent, legal guardian, or spouse; and,
  3. Maintains within Maryland substantially all personal property; and,
  4. Pays Maryland income tax on all earned taxable income including all taxable income earned outside the State; and,
  5. Registers all owned motor vehicles in Maryland in accordance with Maryland law; and,
  6. Possesses a valid Maryland driver's license, if licensed, in accordance with Maryland law; and,
  7. Is registered in Maryland, if registered to vote; and,
  8. Receives no public assistance from a state other than the State of Maryland or from a city, county or municipal agency other than one in Maryland; and,
  9. Has a legal ability under Federal and Maryland law to live permanently without interruption in Maryland.
- B. In addition, persons with the following status shall be accorded the benefits of In-State Status for the period in which they hold such status:
1. A full-time or part-time (at least 50 percent time) regular employee of the University System of Maryland.
  2. The spouse or financially dependent child of a full-time or part-time (at least 50 percent time) regular employee of the USM.
  3. A full-time active member of the Armed Forces of the United States whose home of residency is Maryland or one who resides or is stationed in Maryland, or the spouse or a financially dependent child of such a person.
  4. For UMUC, a full-time active member of the Armed Forces of the United States on active duty, or the spouse of a member of the Armed Forces of the United States on active duty.
  5. A graduate assistant appointed through the University System of Maryland for the semester/term of the appointment. "Except through prior arrangement, this benefit is available only for enrollment at the institution awarding the assistantship
- C. Students not entitled to In-State Status under the preceding paragraphs shall be assigned Out-of-State Status for admission, tuition, and charge-differential purposes.
- D. Assignment of In-State or Out-of-State classification will be made by the University upon an assessment of the totality of facts known or presented to it. "The person seeking In-State Status shall have the burden of proving that he or she satisfies all requirements.
- E. Either of the following circumstances raise a presumption that the student is residing in the State of Maryland primarily for the purpose of attending an educational institution,
1. The student was attending high school or residing outside Maryland at the time of application for admission to a USM institution OR,
  2. The student is both (a) not financially independent and (b) is financially dependent upon a person not a resident of Maryland.
- The burden shall be on the student to rebut the presumption.

## II. Procedures

- A. An initial determination of In-State Status will be made by the University at the time a student's application for admission is under consideration. "The determination made at that time, and any determination made thereafter, shall prevail for each semester/term until the determination is successfully challenged in a timely manner.
- B. A change in status must be requested by submitting a USM "Petition for Change in Classification for Admission, Tuition and Charge Differential". A student applying for a change to In-State Status must furnish all required documentation with the Petition by the last published date to register for the forthcoming semester/term for which the change in classification is sought.

- C. The student shall notify the institution in writing within fifteen (15) days of any change in circumstances which may alter In-State Status.
- D. In the event incomplete, false, or misleading information is presented, the institution may, at its discretion, revoke in-state status and take disciplinary action provided for by the institution's policy. "Such action may include suspension or expulsion." If In-State Status is gained due to false or misleading information, the University reserves the right to retroactively assess all Out-of-State charges for each semester/term affected.
- E. Each institution of the University System of Maryland shall develop and publish additional procedures to implement this policy. "Procedures shall provide that on request the President or designee has the authority to waive any residency criterion set forth in Section I. if it is determined that the student is indeed a permanent resident and the application of the criteria creates an unjust result." These procedures shall be filed with the Office of the Chancellor.

## III. Definitions

- A. Financially Dependent: "For the purposes of this policy, a financially dependent student is one who is claimed as a dependent for tax purposes or who receives more than one-half of his or her support from another person during the twelve (12) month period immediately prior to the last published date for registration for the semester or session. If a student receives more than one-half of his or her support in the aggregate from more than one person, the student shall be considered financially dependent on the person providing the greater amount of support.
- B. Financially Independent: "A financially independent student is one who (1) declares himself or herself to be financially independent as defined herein; (2) does not appear as a dependent on the Federal or State income tax return of any other person; (3) receives less than one-half of his or her support from any other person or persons; and (4) demonstrates that he or she provides through self-generated support one-half or more of his or her total expenses.
- C. Parent: "A parent may be a natural parent, or, if established by a court order recognized under the law of the State of Maryland, an adoptive parent.
- D. Guardian: "A guardian is a person so appointed by a court order recognized under the law of the State of Maryland.
- E. Spouse: A spouse is a partner in a legally contracted marriage.
- F. Child: A child is a natural child or a child legally adopted pursuant to a court order recognized under the law of Maryland.
- G. Self-Generated: "Self-generated describes income which is derived solely from compensation for an individual's own efforts as evidenced, for example, by federal or state W-2 forms or IRS Form 1099 where interest income is based upon finances created from one's own efforts. "For the purposes of this policy, grants, stipends, awards, benefits, loans and gifts (including federal and State aid, grants, and loans) may not be used as self-generated income.
- H. Regular Employee: "A regular employee is a person employed by USM who is assigned to a State budget line or who is otherwise eligible to enroll in a State retirement system. "Examples of categories NOT considered regular employees are graduate students, contingent employees, and independent contractors.

## IV. Implementation Period

This policy as amended by the Board of Regents on November 27, 2000 shall be applied to all student residency classification decisions made on or after this date.

## Appendix I: Undergraduate Student Grievance Procedure

*Approved by the President August 1, 1991*

### I. Purpose

This procedure provides a means for an undergraduate student to seek redress for acts or omissions of individual faculty members as well as academic departments, programs, colleges, or divisions without fear of reprisal or discrimination.

## II. Scope of Grievances: Expectations of Faculty and Academic Units

The scope of the matters which may constitute a grievance under this procedure is limited to believed violations of the expectations of faculty and academic units as set forth below.

### A. Faculty

The following are considered to be reasonable expectations of faculty:

1. There shall be a written description at the beginning of each undergraduate course specifying in general terms the content and nature of assignments, examination procedures, and the basis for determining final grades. In cases where all or some of this information cannot be provided at the beginning of the course, a clear explanation of the delay and the basis of course development shall be provided.
2. There shall be reasonable notice of major papers and examinations in the course.
3. There shall be a reasonable number of recitations, performances, quizzes, tests, graded assignments and/or student/instructor conferences to permit evaluation of student progress throughout the course.
4. Unless prohibited by statute or contract, there shall be a reasonable opportunity to review papers and examinations after evaluation by the instructor, while materials are reasonably current.
5. There shall be a reasonable approach to the subject which attempts to make the student aware of the existence of different points of view.
6. There shall be reasonable access to the instructor during announced regular office hours or by appointment.
7. There shall be regular attendance by assigned faculty unless such attendance is prevented by circumstances beyond the control of the faculty member.
8. There shall be reasonable adherence to published campus schedules and location of classes and examinations. Classes not specified in the schedules are to be arranged at a mutually agreeable time on campus, unless an off-campus location is clearly justified.
9. Reasonable confidentiality of information gained through student-faculty contact shall be maintained.
10. There shall be public acknowledgement of significant student assistance in the preparation of materials, articles, books, devices and the like.
11. There shall be assignment of materials to which all students can reasonably expect to have access.

### B. Academic Units

The academic units (programs, departments, colleges, schools, divisions) in cooperation with the Office of the Dean for Undergraduate Studies and the Office of Admissions and the Office of the Registrar shall, whenever possible, provide the following:

1. Accurate information on academic requirements through designated advisors and referral to other parties for additional guidance.
2. Specific policies and procedures for the award of academic honors and awards, and impartial application thereof.
3. There shall be equitable course registration in accordance with University policy and guidelines.

## III. Alternative Grievance Procedures

No other University grievance procedure may be used simultaneously or consecutively with the Undergraduate Student Grievance Procedure with respect to the same or substantially same issue or complaint, or with issues or complaints arising out of or pertaining to the same set of facts.

The procedures of the Human Relations Code and/or any University grievance procedure may not be utilized to challenge the procedures, actions, determinations or recommendations of any person(s) or board(s) acting pursuant to the Undergraduate Student Grievance Procedure.

## IV. Limitations

Notwithstanding any provision of this Undergraduate Student Grievance Procedure to the contrary, the following matters do not constitute the basis for a grievance under this policy:

- A. Policies, regulations, decisions, resolutions, directives and other acts of the Board of Regents of the University of Maryland System, The Office of the Chancellor of the University of Maryland System, and the Office of the President of the University of Maryland College Park;
- B. Any statute, regulation, directive, or order of any department or agency of the United States or the State of Maryland;
- C. Any matter outside the control of the University of Maryland System;
- D. Course offerings;
- E. The staffing and structure of any academic department or unit;
- F. The fiscal management and allocation of resources by the University of Maryland System and the University of Maryland at College Park;
- G. Any issue(s) or act(s) which does (do) not affect the complaining party directly;
- H. Matters of academic judgment relating to an evaluation of a student's academic performance and/or academic qualifications; except that the following matters of a procedural nature may be reviewed under these procedures if filed as a formal grievance within thirty days of the first meeting of the course to which they pertain:
  1. Whether reasonable notice has been given as to the relative value of all work considered in determining the final grade and/or assessment of performance in the course. The remedy for a successful grievance based upon this subsection shall be the giving of notice by the instructor.
  2. Whether a reasonably sufficient number of examinations, papers, laboratories and/or other academic exercises have been scheduled to present the student with a reasonable opportunity to demonstrate academic merit. The remedy for a successful grievance under this subsection shall be the scheduling of such additional academic exercises as the instructor, in consultation with the department chair or dean, and upon consideration of the written opinion of the divisional hearing board shall deem appropriate.
9. "Class" grievances are not cognizable under these procedures. A screening or hearing board may, in its discretion consolidate grievances presenting similar facts and issues, and recommend generally applicable relief as it deems warranted;
10. There may be no challenge to the award of a specific grade under these procedures.

## V. Finality

Any student who elects to use the Undergraduate Student Grievance Procedure agrees to abide by the final disposition arrived thereunder, and shall not subject this disposition to review under any other procedure within the University of Maryland System. For the purpose of this limitation, a student shall be deemed to have elected to utilize the Undergraduate Student Grievance Procedures at the time a written grievance is filed.

## VI. Procedure for Grievance Involving Faculty Member or Academic Unit

### A. Informal Resolution

The initial effort in all cases shall be toward achieving a resolution of the grievance through the following informal means:

#### 1. Grievance Against an Individual Faculty Member

The student should first contact the faculty member, present the grievance in its entirety, and attempt a complete resolution.

If all or part of the grievance remains unresolved, the student may present the grievance to the immediate administrative supervisor of the faculty member.

A student may present a grievance directly to the instructor's supervisor if the instructor is not reasonably available to discuss the matter.

The supervisor shall attempt to mediate the dispute, and if a mutually acceptable resolution is reached, the case shall be closed.

#### 2. Grievance Against an Academic Department

The student should contact the department head, director, or dean and present the grievance in its entirety.

The department head, director, or dean shall attempt a complete resolution of the dispute.

### B. Formal Resolution

Divisional Screening Board

A student who has attempted informal resolution, and remains dissatisfied may obtain a formal resolution of a grievance pursuant to the following procedure:

1. The student shall file a written grievance with the Screening Board for Academic Grievances of the Division (hereinafter referred to as the divisional screening board).
2. The writing shall contain:
  - the act, omission, or matter which is the subject of the complaint;
  - all facts the student believes are relevant to the grievance;
  - the resolution sought;
  - all arguments in support of the desired solution.
3. A grievance must be filed in a timely manner or it will not be considered. In order to be timely, a grievance must be received by the appropriate divisional screening board within thirty days of the act, omission or matter which constitutes the basis of the grievance, or within thirty days of the date the student is first placed upon reasonable notice thereof, whichever occurs first. It is the responsibility of the student to insure timely filing.
4. The divisional screening board shall immediately notify an instructor or academic unit head of the a timely grievance. A copy of the grievance and all relevant material shall be provided.
5. The instructor or academic unit head shall make a complete written response to the divisional screening board within ten days of receipt of a grievance. In cases where a grievance is received within ten days of the final day of classes, a response is due within ten days of the beginning of the next semester in which the faculty member is working on campus. This extension is not available to persons whose appointments terminate on or before the last day of the semester in which the grievance is filed.
6. A copy of the faculty member's response shall be sent by the divisional screening board to the student filing the grievance.
7. The divisional screening board may request further written information from either party.
8. The divisional screening board shall review the case to determine if a formal hearing is warranted.

All or part of a grievance shall be dismissed if the divisional screening board concludes the grievance is:

- untimely,
- based upon a non-grievable matter,
- being concurrently reviewed in another forum,
- previously decided pursuant to this or any other review procedure,
- frivolous or filed in bad faith.

All or part of a grievance may be dismissed if the divisional screening board concludes in its discretion that the grievance is:

- insufficiently supported,
- premature,
- otherwise inappropriate or unnecessary to present to the divisional hearing board.

The divisional screening board shall meet to review grievances in private. A decision to dismiss a grievance requires a majority vote of at least three members.

If a grievance is dismissed in whole or in part, the student filing the grievance shall be so informed, and shall be given a concise written statement of the basis for the dismissal.

A decision to dismiss a grievance is final and is not subject to appeal.

9. If the divisional screening board determines a grievance to be appropriate for a hearing, the dean shall be informed. The dean shall convene a divisional hearing board within fifteen days thereafter. The time may be extended for good cause at the discretion of the dean.

#### C. Divisional Hearing Board

The following rules apply to the conduct of a hearing by the divisional hearing board:

1. Reasonable notice of the time and place of the hearing shall be provided to both parties. Notice shall include a brief statement of the allegations and the remedy sought by the student. Hearings shall be held on campus.

2. A record of the hearing, including all exhibits shall be kept by the chairperson of the screening board. All documents and materials filed with the divisional screening board shall be forwarded to the divisional hearing board, and shall become a part of the record.
3. Hearings are closed to the public unless a public hearing is specifically requested by both parties.
4. Presentation of Evidence

Each party shall have the opportunity to make an opening statement, present written evidence, present witnesses, cross-examine witnesses, offer personal testimony, and such other material as is relevant.

Incompetent, irrelevant, immaterial and unduly repetitious evidence may be excluded by the chairperson of the hearing board.

It is the responsibility of each party to have their witnesses available and to be completely prepared at the time of the hearing. The student shall present the case first, and the faculty member shall respond.

Upon completion of the presentation of all evidence, both parties shall be given the opportunity to present oral arguments and make closing statements within the time limits set by the chairperson of the hearing board.

Upon the request of either party, all persons to be called as witnesses shall be sequestered.

Each party may be assisted in the presentation of the case by a student or faculty member of his/her choice.

It is the responsibility of the chairperson of the hearing board to manage the hearing, and to decide all questions relating to the presentation of evidence and appropriate procedure, and the chairperson is the final authority in such matters except as established herein. The chairperson may seek the advice of UMCP counsel.

The hearing board shall have the right to examine any person or party testifying before it, and on its own motion, may request the presence of any person for the purpose of testifying and the production of evidence.

5. The above enumerated procedures and powers of the divisional hearing board are non-exclusive. The chairperson may take any such action as is reasonably necessary to facilitate the orderly and fair conduct of the hearing which is not inconsistent with the procedures set forth herein.
6. Upon completion of the hearing, the hearing board shall meet privately to consider the validity of the grievance. The burden of proof rests with the student to show by a preponderance of the evidence that a substantial departure from the expectations set forth in section "B" above has occurred, and that has operated to the actual prejudice and injury of the student.

A decision upholding a grievance shall require the majority vote of at least three members of the divisional hearing board.

A decision of the hearing board shall address only the validity of the grievance. The decision shall be forwarded to the dean in written opinion. In the event the decision is in whole or in part favorable to the student, the hearing board may submit an informal recommendation concerning relief believed to be warranted based upon the facts presented at the hearing.

7. The dean shall immediately, upon receipt of the written opinion, forward copies to the student and the faculty member or head of academic unit. Each party has ten days from the date of receipt to file a written appeal with the dean.
8. Appeals

The appeal shall be in writing and set forth in complete detail the grounds for the appeal.

A copy of the appeal shall be sent to the opposing party, who shall have ten days following receipt to respond in writing to the dean.

The sole grounds for appeal shall be:

- a substantial prejudicial procedural error committed in the conduct of the hearing in violation of the procedures established herein. Discretionary decisions of the chairperson shall not constitute the basis of an appeal.
- the existence of new and relevant evidence of a significant nature which was not reasonably available at the time of hearing.

9. In the absence of a timely appeal, or following receipt and consideration of all timely appeals, the dean may:
  - dismiss the grievance, grant such redress as is believed appropriate,
  - reconvene the divisional hearing board to rehear the grievance in part or whole and/or to hear new evidence,
  - convene a new divisional hearing board to rehear the case in its entirety.
10. The dean shall inform all parties of the decision in writing and the grievance shall thereafter be concluded. The decision of the dean shall be final and binding, and not subject to review or appeal.
 

In non-departmental colleges, the Dean for Undergraduate Studies shall assume the duties of the dean for purposes of this procedure.

## VII. Grievance Procedures Against the Dean for Office of Undergraduate Studies

### A. Informal Resolution

The initial effort in all cases shall be to achieve resolution of the grievance through informal means.

1. The student should first contact the administrative dean, present the grievance in its entirety, and attempt a complete resolution.
2. If any portion of the grievance remains unresolved, the student may present such part to the Vice President for Academic Affairs. A grievance may be initially presented to the Vice President for Academic Affairs if the dean is not reasonably available to discuss the matter.
3. The Vice President shall attempt to mediate the dispute. Should a mutually acceptable resolution be reached, the case shall be closed.

### B. Formal Resolution

Should a student remain dissatisfied with the disposition of the grievance following attempts at informal resolution, a formal resolution may be obtained pursuant to the following procedure:

1. The student shall file with the President a timely written grievance.
2. The writing shall contain:
  - the act, omission or matter which is the subject of the complaint,
  - all facts the student believes to be relevant to the grievance,
  - the resolution sought,
  - all arguments upon which the student relies in seeking such resolution.
3. No grievance will be considered unless it is timely.
 

In order to be timely, a grievance must be received by the President within thirty days of the act, omission or matter which is the basis for the grievance, or within thirty days of the date the student is first placed upon reasonable notice thereof, whichever is later.

It is the responsibility of the student to ensure timely filing of the grievance.
4. Upon receipt of a timely grievance, the President shall forward the grievance to a divisional screening board of a division other than the one from which the grievance has arisen.
 

The divisional screening board shall immediately notify the administrative dean against whom the grievance has been filed and provide a copy of the grievance and all relevant materials.
5. The administrative dean against whom the grievance has been filed shall respond in writing to the divisional screening board within ten days. In the event the grievance is received by the administrative dean after the last day of classes of a semester, the time for written response shall be ten days after the first day of classes of the semester immediately following.
 

A copy of the response from the administrative dean shall be sent to the student.
6. In its discretion, the divisional screening board may request further written submissions from the student and/or the administrative dean.
7. The divisional screening board shall review and act upon a grievance against an administrative dean in the same manner and according to the same requirements as for the review of grievances against faculty members, academic departments, programs and colleges set forth in this procedure.

8. If the divisional hearing board determines that a grievance is appropriate for a hearing, the President shall be so informed.

The President shall convene a campus hearing board within fifteen days to hear the grievance. This time may be extended for good cause at the discretion of the President.

9. The campus hearing board shall conduct a hearing in accordance with the rules established in this procedure for the conduct of hearings by divisional hearing boards.

Upon completion of a hearing, the campus hearing board shall meet privately to consider the grievance in the same manner and according to the same rules as set forth for the consideration of grievances by divisional hearing boards, except that the decision shall be forwarded to the President.

In the event the campus hearing board decides in whole or on part in favor of the student, it may submit an informal recommendation to the President with respect to such relief as it may believe is warranted by the facts as proven in the hearing.

10. The President shall immediately, upon receipt of the written opinion, forward copies to the student and the administrative dean. Each party shall have ten days from the date of receipt to file an appeal with the President.

### 11. Appeal

Each party has ten days from receipt of the written decision to file an appeal with the President.

The grounds for an appeal shall be the same as those set forth in this procedure for appealing a decision of a divisional hearing board.

The appeal shall be in writing, and set forth in complete detail the grounds relied upon. A copy of the appeal shall be sent to the opposite party, who shall have ten days following receipt to file a written response with the President.

12. In the absence of a timely appeal, or following receipt and consideration of all timely appeals and responses, the President may:
  - dismiss the grievance
  - grant such redress as is believed appropriate.

- reconvene the campus hearing board to rehearse the grievance in whole or in part and/or review new evidence
- convene a new campus hearing board to rehear the case in its entirety.

13. The President shall inform all parties of the decision in writing, and the grievance shall be thereafter concluded. The decision of the President is final and binding, and is not subject to appeal or review.

## VIII. Composition of Screening and Hearing Boards

The following procedures are directives only, and for the benefit and guidance of deans and the President in the selection and establishment of divisional and campus hearing boards. The selection and establishment of a board is not subject to challenge by a party, except that at the start of a hearing, a party may challenge for good cause a member or members of the hearing board before whom the party is appearing. The chairperson of the hearing board shall consider the challenge and may replace any member where it is believed necessary to achieve an impartial hearing and decision.

### A. Divisional Screening Boards for Academic Grievances

1. Prior to the beginning of each academic year, the divisional council of each division shall choose at least fifteen faculty members and fifteen students to be eligible to serve on boards considering academic grievances from that division. Concurrently, it shall choose three other faculty members to be eligible to serve on boards considering academic grievances for the Administrative Dean for Office of Undergraduate Studies. The names shall be forwarded to the Administrative Dean.
2. Prior to the beginning of each academic year, the Administrative Council of the Administrative Dean for Office of Undergraduate Studies shall choose at least fifteen students to be eligible to serve on a screening board to review grievances arising within academic units under the administration of the Administrative Dean for Office of Undergraduate Studies. These names shall be forwarded to the Administrative Dean.

### B. Establishment of Screening Boards

1. Upon receipt of the names of the designated faculty and students, the dean shall appoint a five member divisional screening board. The screening board shall consist of three faculty members and two students, and each shall serve for the academic year or until a new board is appointed by the dean, whichever occurs later. The dean shall also designate two alternate faculty members and two alternate students from the names presented by the divisional council.

The dean shall designate one of the faculty members to be the chairperson of the divisional screening board.

Members of the divisional screening board shall not serve on a divisional hearing during the same year, except that the alternate members may serve on a hearing board other than one considering a case in which the member has previously been involved in the screening process.

A member of the divisional screening board shall not review a grievance arising out of his/her own department or program, in such instance, an alternate member shall serve.

2. Upon receipt of the names of the faculty members designated by each divisional council and students designated by the administrative council, the Administrative Dean for Office of Undergraduate Studies shall appoint a five member screening board to review grievances arising within the academic units under his/her administration.

#### C. Divisional Hearing Boards for Academic Grievances

For each grievance referred by the divisional screening board, the dean shall appoint a five-member divisional hearing board.

The divisional hearing board shall be composed of three faculty members and two students selected by the dean from among those names previously designated by the divisional screening board. The dean shall designate one faculty member as chairperson.

No faculty member or student shall be appointed to hear a grievance arising out of his/her own department or program.

The Administrative Dean for Office of Undergraduate Studies shall appoint in the same manner, a hearing board to hear each grievance referred by the screening board reviewing grievances arising from the academic units under his/her administration. The members of the hearing board shall be selected from among those names previously forwarded to the Administrative Dean for Office of Undergraduate Studies by the divisional councils and from those who have not been appointed to the screening board.

#### D. Campus Hearing Board for Academic Grievances

For each case referred by a divisional hearing board to the President for a hearing, the President shall appoint a five-member campus hearing board. The campus hearing board shall be composed of three faculty members and two students selected by the President from among those names designated by the divisional councils and remaining after the establishment of screening boards.

The President shall designate one faculty member as chairperson.

No faculty member or student shall be appointed to hear a grievance arising out of his/her own division or administrative unit.

### IX. Definitions

- A. Day refers to days of the academic calendar, not including Saturdays, Sundays, or holidays observed by UMCP.
- B. Party refers to the student and the individual faculty member or head of the academic unit against whom the grievance is made.

## Appendix J: Procedures for Review of Alleged Arbitrary and Capricious Grading

*Approved by President  
December 4, 1990*

### I. Purpose

The following procedures are designed to provide a means for undergraduate students to seek review of final course grades alleged to be arbitrary and capricious. Before filing a formal appeal, students are urged to resolve grievances informally with the instructor and/or the administrator of the academic unit offering the course. Students who file a written appeal under the following procedures shall be expected to abide by the final disposition of the appeal, as provided in Paragraph E, below, and shall be precluded from seeking review of the matter under any other procedure within the University.

### II. Definitions

When used in these procedures

- A. The term "arbitrary and capricious" grading means:
  1. the assignment of a course grade to a student on some basis other than performance in the course; or,
  2. the assignment of a course grade to a student by resorting to unreasonable standards different from those which were applied to other students in that course; or,
  3. the assignment of a course grade by a substantial, unreasonable and unannounced departure from the instructor's previously articulated standards.
- B. The words "day" or "days" refer to normal working days at the University, excluding Saturdays, Sundays and University holidays.
- C. The word "administrator" is defined as the administrative head of the academic unit offering the course.

### III. Procedures

- A. A student who believes his/her final grade in a course is improper and the result of arbitrary and capricious grading should first confer promptly with the instructor of the course. If the instructor has left the University, is on approved leave, or cannot be reached by the student after a reasonable effort, the student shall consult with the administrator. If the student and the instructor or administrator are unable to arrive at a mutually agreeable solution, the student may file an appeal within twenty days after the first day of instruction of the next semester (excluding summer terms) to a standing committee consisting of three tenured faculty members of the academic unit offering the course. If the instructor of the course is a member of the committee, that instructor shall be disqualified and replaced by a tenured faculty member selected by the administrator.
- B. The student shall file an appeal by submitting to the committee a written statement detailing the basis for the allegation that a grade was improper and the result of arbitrary and capricious grading, and presenting relevant evidence. The appeal shall be dismissed if:
  1. the student has submitted the same, or substantially the same complaint to any other formal grievance procedure; or,
  2. the allegations, even if true, would not constitute arbitrary and capricious grading;
  3. the appeal was not timely; or,
  4. the student has not conferred with the instructor or with the instructor's immediate administrative supervisor, in accordance with Paragraph A of these procedures.
- C. If the appeal is not dismissed, the committee shall submit a copy of the student's written statement to the instructor with a request for a prompt written reply. If it then appears that the dispute may be resolved without recourse to the procedures specified in Paragraph D, below, the committee will attempt to arrange a mutually agreeable solution.
- D. If a mutually agreeable solution is not achieved, the committee shall proceed to hold an informal, non-adversarial fact-finding meeting concerning the allegations. Both the student and the instructor shall be entitled to be present throughout this meeting and to present any relevant evidence, except that the student shall not be present during the discussion of any other student. Neither the student nor the faculty member shall be accompanied by an advocate or representative. The meeting shall not be open to the public.
- E. The committee shall deliberate privately at the close of the fact-finding meeting. If a majority of the committee finds the allegation supported by clear and convincing evidence, the committee shall take any action which they feel would bring about substantial justice, including, but not limited to:
  1. directing the instructor to grade the student's work anew; or
  2. directing the instructor to administer a new final examination or paper in the course; or
  3. directing the cancellation of the student's registration in the course; or
  4. directing the award of a grade of "pass" in the course, except that such a remedy should be used only if no other reasonable alternative is available. The committee is not authorized to award a letter grade or to reprimand or otherwise take disciplinary action against the instructor. The decision of the committee shall be final and shall be promptly reported in writing to the parties. The administrator of the academic unit shall be responsible for implementing the decision of the committee.

## Appendix K: Policy on Participation by Students in Class Exercises That Involve Animals

Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available. If no alternatives are available, the refusal to participate in required activities involving animals may result in a failing grade in the course. Departments including courses where animals are used must actively inform students of such courses, including, but not limited to, notices in the Catalog.

The University of Maryland, College Park campus, affirms the right of the faculty to determine course content and curriculum requirements. The University, however, also encourages faculty to consider offering alternatives to the use of animals in their courses. In each course, the instructor determines whether the use of animals in the classroom exercises will be a course requirement or optional activity. The following departments have courses that may require animals to be used in class activities: Animal and Avian Sciences, Cell Biology and Molecular Genetics, Psychology, Veterinary Medicine, Biology, and courses with the NFSC prefix.

*Committee on Academic Procedures and Standards  
April 27, 1990*

## Appendix L: Completion of Interrupted Degree

Students whose registration at the University of Maryland, College Park, has lapsed for more than 10 years shall be required to complete a minimum of 15 credit hours at College Park after their return to campus in order to earn a baccalaureate degree.

Recommendations about courses needed to satisfy the remaining degree requirements will be made at the department level, with approval of the Dean's Office required. The reason for requiring these credits is that many fields change sufficiently in 10 years to require that students take current courses if they are to be awarded a current degree. Exceptions to the requirement for a minimum of 15 credits earned at College Park upon return to the campus can be recommended by the Deans for approval in the Office of the Vice President for Academic Affairs.

*College Park Senate  
October 1995*

## Appendix M: Required Disclosure of University Procedure on the Collection, Use and Protection of Student Social Security Numbers (SSN)

Section 15-110 of the Education Article of the Annotated Code of Maryland prohibits the use of SSN on University identification cards. Section 7(b) of the Privacy Act of 1974 (5 U.S.C. 522a) and section 10-624 of the State Government Article of the Annotated Code of Maryland, also require that when any Federal, State, or local government agency requests an individual to disclose his or her Social Security Number (SSN), that individual must also be advised whether the disclosure is mandatory or voluntary, by what statutory or other authority the number is solicited, what use will be made of it, the specific consequences for failure to provide the information, whether the information is generally available for public inspection and whether the information is made available or transferred to or shared with any entity other than the University.

Accordingly, each applicant for admission is advised that disclosure of his or her SSN is required as a condition for making application to the University of Maryland for purposes of administering federal financial aid programs and complying with various State and Federal reporting requirements including reporting to the IRS. The University may use a student's SSN to accurately report federally required data, to generate various federal tax and financial aid reports, and to ensure the accuracy of student data that is exchanged within the University of Maryland, between post-secondary education institutions, with the University System of Maryland and other outside entities as necessary or required for the conduct of legitimate University business and consistent with applicable law. The SSN will be maintained in a secure and confidential manner and not be re-disclosed for any other purpose.

The authority for requesting disclosure of a student's SSN is grounded in various federal laws including but not limited to: 42 USC 405c, affecting wage reporting and withholdings; 34 CFR 668.14 and 34 CFR 668.16, relating to student aid programs; and 26 CFR 1.6050S-1, addressing Internal Revenue Code reporting requirements pertaining to tuition payments.

In addition, it should be noted that the SSN of a parent, guardian or spouse of an applicant is also requested if the student claims dependency on that person for financial aid or residency for tuition purposes. A parent, guardian or spouse is advised that disclosure of his or her SSN is necessary for the above student purpose and failure to provide it may affect the student's financial aid or tuition status. A parent's, guardian's or spouse's SSN will only be used for the purpose for which it was collected and will not be maintained in any other system of records.

A unique U ID Number is assigned to students as part of their initial enrollment and is used for all University identification purposes."

## Appendix N: Transfer Credit Policy—Maryland Higher Education Commission (Title 13 B)

**Subtitle 06 GENERAL EDUCATION AND TRANSFER**  
**Chapter 01 PUBLIC INSTITUTIONS OF HIGHER EDUCATION**

Authority: Education Article, 11-201 - 11-206, Annotated Code of Maryland

### .01 Scope and Applicability.

This chapter applies only to public institutions of higher education.

### .02 Definitions.

A. In this chapter, the following terms have the meanings indicated.

B. Terms defined.

- (1) "A.A. degree" means the Associate of Arts degree.
- (2) "A.A.S. degree" means the Associate of Applied Sciences degree.
- (3) "Arts" means courses that examine aesthetics and the development of the aesthetic form and explore the relationship between theory and practice. Courses in this area may include fine, performing and studio art, appreciation of the arts, and history of the arts.
- (4) "A.S. degree" means the Associate of Sciences degree.
- (5) "Biological and physical sciences" means courses that examine living systems and the physical universe. They introduce students to the variety of methods used to collect, interpret, and apply scientific data, and to an understanding of the relationship between scientific theory and application.
- (6) "English composition courses" means courses that provide students with communication knowledge and skills appropriate to various writing situations, including intellectual inquiry and academic research.
- (7) "General education" means the foundation of the higher education curriculum providing a coherent intellectual experience for all students.
- (8) "General education program" means a program that is designed to:
  - (a) Introduce undergraduates to the fundamental knowledge, skills, and values that are essential to the study of academic disciplines;
  - (b) Encourage the pursuit of life-long learning; and
  - (c) Foster the development of educated members of the community and the world.
- (9) "Humanities" means courses that examine the values and cultural heritage that establish the framework for inquiry into the meaning of life. Courses in the humanities may include the language, history, literature, and philosophy of Western and other cultures.
- (10) "Mathematics" means courses that provide students with numerical, analytical, statistical and problem-solving skills.
- (11) "Native student" means a student whose initial college enrollment was at a given institution of higher education and who has not transferred to another institution of higher education since that initial enrollment.
- (12) "Parallel program" means the program of study or courses at one institution of higher education which has comparable objectives as those at another higher education institution, for example, a transfer program in psychology in a community college is definable as a parallel program to a baccalaureate psychology program at a 4-year institution of higher education.
- (13) "Receiving institution" means the institution of higher education at which a transfer student currently desires to enroll.

- (14) "Recommended transfer program" means a planned program of courses, both general education and courses in the major, taken at a community college, which is applicable to a baccalaureate program at a receiving institution and ordinarily the first 2 years of the baccalaureate degree.
- (15) "Sending institution" means the institution of higher education of most recent previous enrollment by a transfer student at which transferable academic credit was earned.
- (16) "Social and behavioral sciences" means courses that examine the psychology of individuals and the ways in which individuals, groups, or segments of society behave, function, and influence one another. The courses include, but are not limited to, subjects which focus on:
  - (a) History and cultural diversity;
  - (b) Concepts of groups, work, and political systems;
  - (c) Applications of qualitative and quantitative data to social issues; and
  - (d) Interdependence of individuals, society, and the physical environment.
- (17) "Transfer student" means a student entering an institution for the first time having successfully completed a minimum of 12 semester hours at another institution which is applicable for credit at the institution the student is entering.

### **.03 General Education Requirements for Public Institutions.**

- A. While public institutions have the autonomy to design their general education program to meet their unique needs and mission, that program shall conform to the definitions and common standards in this chapter. A public institution shall satisfy the general education requirement by:
  - (1) Requiring each program leading to the A.A. or A.S. degree to include not less than 30 and no more than 36 semester hours and each baccalaureate degree program to include not less than 40 and no more than 46 semester hours of required core courses, with the core requiring, at a minimum, coursework in each of the following five areas:
    - (a) Arts and humanities
    - (b) Social and behavioral sciences
    - (c) Biological and physical sciences
    - (d) Mathematics and
    - (e) English composition
  - (2) Conforming with COMAR 13B.02.02.16D(2)(b)-(c).
- B. Each core course used to satisfy the distribution requirements of (1) of this regulation shall carry at least 3 semester hours.
- C. General education programs of public institutions shall require at least:
  - (1) one course in each of two disciplines in arts and humanities;
  - (2) one course in each of two disciplines in social and behavioral sciences;
  - (3) two science courses, at least one of which shall be a laboratory courses;
  - (4) one course in mathematics at or above the level of college algebra; and
  - (5) one course in English composition.
- D. Interdisciplinary and Emerging Issues.
  - (1) In addition to the five required areas in §A of this regulation, a public institution may include up to 8 semester hours in a sixth category that addresses emerging issues that institutions have identified as essential to a full program of general education for their students. These courses may:
    - (a) be integrated into other general education courses or may be presented as separate courses; and
    - (b) include courses that:
      - (i) provide an interdisciplinary examination of issue across the five areas, or
      - (ii) address other categories of knowledge, skills, and values that lie outside of the five areas.
  - (2) Public institutions may not include the courses in this section in a general education program unless they provide academic content and rigor equivalent to the areas in §A(1) of this regulation.
- E. General education programs leading to the A.A.S. degree shall include at least 20 semester hours from the same course list designated by the sending institution for the A.A. and A.S. degrees. The A.A.S. degree shall include at least one 3-semester-hour course from each of the five areas listed in §A(1) of this regulation.

- F. A course in a discipline listed in more than one of the areas of general education may be applied only to one area of general education.
- G. A public institution may allow a speech communication or foreign language course to be part of the arts and humanities category.
- H. Composition and literature courses may be placed in the arts and humanities area if literature is included as part of the content of the course.
- I. Public institutions may not include physical education skills courses as part of the general education requirements.
- J. General education courses shall reflect current scholarship in the discipline and provide reference to theoretical frameworks and methods of inquiry appropriate to academic disciplines.
- K. Courses that are theoretical may include applications, but all applications courses shall include theoretical components if they are to be included as meeting general education requirements.
- L. Public institutions may incorporate knowledge and skills involving the use of quantitative data, effective writing, information retrieval, and information literacy when possible in the general education program.
- M. Notwithstanding §A(1) of this regulation, a public 4-year institution may require 48 semester hours of required core courses if courses upon which the institution's curriculum is based carry 4 semester hours.
- N. Public institutions shall develop systems to ensure that courses approved for inclusion on the list of general education courses are designed and assessed to comply with the requirements of this chapter.

### **.04 Transfer of General Education Credit.**

- A. A student transferring to one public institution from another public institution shall receive general education credit for work completed at the student's sending institution as provided by this chapter.
- B. A completed general education program shall transfer without further review or approval by the receiving institution and without the need for a course-by-course match.
- C. Courses that are defined as general education by one institution shall transfer as general education even if the receiving institution does not have that specific course or has not designated that course as general education.
- D. The receiving institution shall give lower-division general education credits to a transferring student who has taken any part of the lower-division general education credits described in Regulation .03 of this chapter at a public institution for any general education courses successfully completed at the sending institution.
- E. Except as provided in Regulation .03M of this chapter, a receiving institution may not require a transfer student who has completed the requisite number of general education credits at any public college or university to take, as a condition of graduation, more than 10-16 additional semester hours of general education and specific courses required of all students at the receiving institution, with the total number not to exceed 46 semester hours. This provision does not relieve students of the obligation to complete specific academic program requirements or course prerequisites required by a receiving institution.
- F. Each sending institution shall designate on or with the student transcript those courses that have met its general education requirements as well as indicate whether the student has completed the general education program.
- G. A.A.S. Degrees.
  - (1) While there may be variance in the numbers of hours of general education required for A.A., A.S., and A.A.S. degrees at a given institution, the courses identified as meeting general education requirements for all degrees shall come from the same general education course list and exclude technical or career courses.
  - (2) An A.A.S. student who transfers into a receiving institution with fewer than the total number of general education credits as designated by the receiving institution shall complete the difference in credits according to the distribution as designated by the receiving institution. Except as provided in 03M, the total general education credits for baccalaureate degree-granting public receiving institutions shall not exceed 46 semester hours.

H. Student responsibilities. A student is held

- (1) Accountable for the loss of credits that:
  - (a) result from changes in the individual's selection of the major program of study
  - (b) were earned for remedial coursework; or
  - (c) exceed the total course credits accepted in transfer as allowed by this chapter and
- (2) responsible for meeting all requirements of the academic program of the receiving institution.

**.05 Transfer of Nongeneral Education Program Credit.**

A. Transfer to Another Public Institution.

- (1) Credit earned at any public institution in the State is transferable to any other public institution if the
  - (a) credit is from a college or university parallel course or program
  - (b) grades in the block of courses transferred average 2.0 or higher and
  - (c) acceptance of the credit is consistent with the policies of the receiving institution governing native students following the same program.
- (2) If a native student's "D" grade in a specific course is acceptable in a program, then a "D" earned by a transfer student in the same course at a sending institution is also acceptable in the program. Conversely, if a native student is required to earn a grade of "C" or better in a required course, the transfer student shall also be required to earn a grade of "C" or better to meet the same requirement.

B. Credit earned in or transferred from a community college is limited to

- (1) 1/2 the baccalaureate degree program requirement, but may not be more than 70 semester hours; and
- (2) The first 2 years of the undergraduate education experience.

C. Nontraditional Credit.

- (1) The assignment of credit for AP, CLEP, or other nationally recognized standardized examination scores presented by transfer students is determined according to the same standards that apply to native students in the receiving institution, and the assignment shall be consistent with the State minimum requirements.
- (2) Transfer of credit from the following areas shall be consistent with COMAR 13B.02.02. and shall be evaluated by the receiving institution on a course by-course basis:
  - (a) technical courses from career programs
  - (b) course credit awarded through articulation agreements with other segments or agencies
  - (c) credit awarded for clinical practice or cooperative education experiences and
  - (d) credit awarded for life and work experiences.
- (3) The basis for the awarding of the credit shall be indicated on the student's transcript by the receiving institution.
- (4) The receiving institution shall inform a transfer student of the procedures for validation of course work for which there is no clear equivalency. Examples of validation procedures include ACE recommendations, portfolio assessment, credit through challenge, examinations, and satisfactory completion of the next course in sequence in the academic area.
- (5) The receiving baccalaureate degree-granting institution shall use validation procedures when a transferring student successfully completes a course at the lower division level that the receiving institution offers at the upper division level. The validated credits earned for the course shall be substituted for the upper division course.

D. Program Articulation.

- (1) Recommended transfer programs shall be developed through consultation between the sending and receiving institutions. A recommended transfer program represents an agreement between the two institutions that allows students aspiring to the baccalaureate degree to plan their programs. These programs constitute freshman/sophomore level coursework to be taken at the community college in fulfillment of the receiving institution's lower division coursework requirement.
- (2) Recommended transfer programs in effect at the time that this regulation takes effect, which conform to this chapter, may be retained.

**.06 Academic Success and General Well-Being of Transfer Students.**

A. Sending Institutions.

- (1) Community colleges shall encourage their students to complete the Associate degree or to complete 56 hours in a recommended transfer program which includes both general education courses and courses applicable toward the program at the receiving institution.
- (2) Community college students are encouraged to choose as early as possible the institution and program into which they expect to transfer.
- (3) The sending institution shall:
  - (a) Provide to community college students information about the specific transferability of courses at 4-year colleges.
  - (b) Transmit information about transfer students who are capable of honors work or independent study to the receiving institution and
  - (c) Promptly supply the receiving institution with all the required documents provided the student has met all financial and other obligations of the sending institution for transfer.

B. Receiving Institutions.

- (1) Admission requirements and curriculum prerequisites shall be stated explicitly in institutional publications.
- (2) The receiving institution shall admit transfer students from newly established public colleges that are functioning with the approval of the Maryland Higher Education Commission on the same basis as applicants from regionally accredited colleges.
- (3) The receiving institution shall evaluate the transcripts of degree seeking transfer students as expeditiously as possible and notify students of the results no later than mid-semester of the students' first semester of enrollment at the receiving institution provided that all official transcripts have been received at least 15 working days before mid-semester. The receiving institution shall inform students of which courses are acceptable for transfer credit and which of those are applicable to the student's intended program of study.
- (4) The receiving institution shall give transfer students the option of satisfying institutional graduation requirements that were in effect at the receiving institution at the time the student enrolled as a freshman at the sending institution. In the case of major requirements, a transfer student may satisfy the major requirements in effect at the time when the student was identifiable as pursuing the recommended transfer program at the sending institution. These conditions are applicable to the student who has been continuously enrolled at the sending institution.

**.07 Programmatic Currency.**

- A. Receiving institutions shall provide to the community college current and accurate information on recommended transfer programs and the transferability status of courses. Community college students shall have access to this information.
- B. Recommended transfer programs shall be developed with each community college whenever new baccalaureate programs are approved by the degree-granting institution.
- C. When considering curricular changes, institutions shall notify each other of the proposed changes that might affect transfer students. An appropriate mechanism shall be created to ensure that both 2- and 4-year public colleges provide input or comments to the institution proposing the change. Sufficient lead time shall be provided to affect the change with minimum disruption. Transfer students are not required to repeat equivalent coursework successfully completed at the community college.

**.08 Transfer Mediation Committee.**

- A. There shall be a Transfer Mediation Committee, which shall be representative of the public 4-year colleges and universities and the community colleges.
- B. Sending and receiving institutions that disagree on the interpretation of the transfer of general education courses as defined by this chapter shall submit their disagreements to the Transfer Mediation Committee. The Transfer Mediation Committee shall also address questions raised by any institutions about the acceptability of new general education courses. As appropriate, the Committee shall consult with faculty on curricular issues.
- C. The findings of the Transfer Mediation Committee shall be considered binding on both parties.



**.09 Appeal Process.**

- A. Notice of Denial of Transfer Credit by the Receiving Institution.
  - (1) Except as provided in §A(2) of this Regulation, the receiving institution shall inform a transfer student in writing of the denial of transfer credit not later than mid-semester of the transfer student's first semester provided that all official transcripts have been received at least 15 working days before mid-semester.
  - (2) If transcripts are submitted after 15 working days before mid-semester of the student's first semester, the receiving institution shall inform the student of credit denied within 20 working days of receipt of the official transcript.
  - (3) The receiving institution shall include in the notice of denial of transfer credit
    - (a) a statement of the student's right to appeal and
    - (b) a notification that the appeal process is available in the institution's catalog.
  - (4) The statement of the student's right to appeal the denial shall include notice of the time limitations in §B of this regulation.
- B. A student believing that the receiving institution has denied the student transfer credits in violation of this chapter may initiate an appeal by contacting the receiving institution's Transfer Coordinator or other responsible official of the receiving institution within 20 working days of receiving notice of the denial of credit.
- C. Response by Receiving Institution
  - (1) A receiving institution shall
    - (a) establish expeditious and simplified procedures governing the appeal of a denial of transfer of credit and
    - (b) respond to a student's appeal within 10 working days.
  - (2) An institution may either grant or deny an appeal. The institution's reasons for denying the appeal shall be consistent with this chapter and conveyed to the student in written form.
  - (3) Unless a student appeals to the sending institution, the writing decision in §C(2) of this regulation constitutes the receiving institution's final decision and is not subject to appeal.
- D. Appeal to Sending Institution.
  - (1) If a student has been denied transfer credit after an appeal to the receiving institution, the student may request the sending institution to intercede on the student's behalf by contacting the transfer coordinator of the sending institution.
  - (2) A student shall make an appeal to the sending institution within 10 working days of having received the decision of the receiving institution.
- E. Consultation Between Sending and Receiving Institutions.
  - (1) Representatives of the two institutions shall have 15 working days to resolve the issues involved in an appeal.
  - (2) As a result of a consultation in this section, the receiving institution may affirm, modify, or reverse its earlier decision.
  - (3) The receiving institution shall inform a student in writing of the result of the consultation
  - (4) The decision arising out of a consultation constitutes the final decision of the receiving institution and is not subject to appeal.

**.10 Periodic Review.**

- A. Report by Receiving Institution.
  - (1) A receiving institution shall report annually the progress of students who transfer from two-year and four-year institutions within the State to each community college and to the Secretary of the Maryland Higher Education Commission.
  - (2) An annual report shall include ongoing reports on the subsequent academic success of enrolled transfer students, including graduation rates, by major subject areas.
  - (3) A receiving institution shall include in the reports comparable information on the progress of native students.
- B. Transfer Coordinator. A public institution of higher education shall designate a transfer coordinator, who serves as a resource person to transfer students at either the sending or receiving campus. The transfer coordinator is responsible for overseeing the application of the policies and procedures outlined in this chapter and interpreting transfer policies to the individual student and to the institution.

- C. The Maryland Higher Education Commission shall establish a permanent Student Transfer Advisory Committee that meets regularly to review transfer issues and recommend policy changes as needed. The Student Transfer Advisory Committee shall address issues of interpretation and implementation of this chapter.

**Administrative History**

**Effective date: December 4, 1995 (22:24 Md. R. 1901)**

**Regulations .02, .03, and .05 amended. Effective date: July 1, 1996 (23:13 Md. R. 946)**

**Appendix O: Code of Academic Integrity**

*Amended Effective Fall 2002,  
Spring 2005*

**Introduction**

The University is an academic community. Its fundamental purpose is the pursuit of knowledge. Like all other communities, the University can function properly only if its members adhere to clearly established goals and values. Essential to the fundamental purpose of the University is the commitment to the principles of truth and academic honesty. Accordingly, the *Code of Academic Integrity* is designed to ensure that the principle of academic honesty is upheld. While all members of the University share this responsibility, the *Code of Academic Integrity* is designed so that special responsibility for upholding the principle of academic honesty lies with the students.

**Definitions**

1. ACADEMIC DISHONESTY: any of the following acts, when committed by a student, shall constitute academic dishonesty:
  - (a) CHEATING: intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
  - (b) FABRICATION: intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
  - (c) FACILITATING ACADEMIC DISHONESTY: intentionally or knowingly helping or attempting to help another to violate any provision of this *Code*.
  - (d) PLAGIARISM: intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.

**Responsibility to Report Academic Dishonesty**

2. Academic dishonesty is a corrosive force in the academic life of a university. It jeopardizes the quality of education and depreciates the genuine achievements of others. It is, without reservation, a responsibility of all members of the campus community to actively deter it. Apathy or acquiescence in the presence of academic dishonesty is not a neutral act. Histories of institutions demonstrate that a laissez-faire response will reinforce, perpetuate, and enlarge the scope of such misconduct. Institutional reputations for academic dishonesty are regrettable aspects of modern education. These reputations become self-fulfilling and grow, unless vigorously challenged by students and faculty alike.

All members of the University community—students, faculty, and staff—share the responsibility and authority to challenge and make known acts of apparent academic dishonesty.

**Honor Statement**

3. Letters informing both graduate and undergraduate students of their acceptance at the University, as well as appointment letters for members of the faculty, shall contain a short statement concerning the role of the Student Honor Council, as well as the obligation of all members of the University of Maryland, College Park community to promote the highest standards of academic integrity.

**Honor Pledge**

4. On every examination, paper or other academic exercise not specifically exempted by the instructor, the student shall write by hand and sign the following pledge:

*I pledge on my honor that I have not given or received any unauthorized assistance on this examination.*

Failure to sign the pledge is not an honors offense, but neither is it a defense in case of violation of this *Code*. Students who do not sign the pledge will be given the opportunity to do so. Refusal to sign must be explained to the instructor. Signing or non-signing of the pledge will not be considered in grading or judicial procedures. Material submitted electronically should contain the pledge, submission implies signing the pledge.

5. On examinations, no assistance is authorized unless given by or expressly allowed by the instructor. On other assignments, the pledge means that the assignment has been done without academic dishonesty, as defined above.
6. The pledge is a reminder that at the University of Maryland students carry primary responsibility for academic integrity because the meaningfulness of their degrees depends on it. Faculty is urged to emphasize the importance of academic honesty and of the pledge as its symbol. Reference on syllabuses to the pledge and to this *Code*, including where it can be found on the Internet and in the Undergraduate Catalog, is encouraged.

### Self-Referral

7. Students who commit acts of academic dishonesty may demonstrate their renewed commitment to academic integrity by reporting themselves in writing to the Chair of the Honor Council. Students may not exercise the self-referral option more than once during their enrollment at the University.
8. If an investigation by the Honor Council Executive Committee or designee reveals that no member of the University had a suspicion of a self-referring student's act of academic dishonesty, then the student will not be charged with academic dishonesty, or left with a disciplinary record. Instead, the Student Honor Council will notify the Dean or a designee and the faculty member where the incident occurred. The Dean or designee shall then convene a conference between the student and the faculty member. The purpose of this conference will be to ensure that the self-referral provisions of this *Code* are followed, not to levy a sanction, or to create a disciplinary record. The Dean will notify the Student Honor Council in writing of the outcome of the conference.<sup>(1)</sup>
9. In all cases where a student self-referral is accepted, the student will be required to successfully complete the non-credit integrity seminar offered by the Student Honor Council. Also, the student will have any grade for the academic exercise in question reduced one letter grade, or to an "F" or a zero, in the discretion of the faculty member involved.
10. If the Honor Council Executive Committee or designee determines that a suspicion of academic dishonesty existed at the time the student admitted the act, then the matter will be resolved in accordance with the procedures specified in this *Code* for resolving academic dishonesty allegations. The student's admission may be considered a mitigating circumstance for purposes of sanctioning.

### Procedures: Reporting and Informal Resolution

11. Any member of the University community who has witnessed an apparent act of academic dishonesty, or has information that reasonably leads to the conclusion that such an act has occurred or has been attempted, has the responsibility to inform the Honor Council promptly in writing.
12. If the Honor Council determines that a report of academic dishonesty is supported by reasonable cause<sup>(2)</sup>, the case shall be referred to the Dean of the College where the incident occurred.<sup>(3)</sup> The Dean or designee, (who must not be the referring faculty member), will inform the accused student in writing of the charges, and shall offer him/her an opportunity for an informal meeting to review the case.<sup>(4)</sup> The faculty of the course may be included in the meeting. The Dean or designee shall also provide the accused student with a copy of this *Code*, and a statement of procedural rights approved by the Honor Council<sup>(5)</sup>, which shall include the right of the student to request the presence of a member of the Honor Council at the informal meeting.
13. If the accused student has no prior record of academic dishonesty or serious disciplinary misconduct<sup>(6)</sup>, the Dean or designee and the student may reach an agreement concerning how the case should be resolved. The standard "XF" grade penalty will normally be imposed if it is agreed by the student that he/she committed an act of academic dishonesty. Any other sanction agreed upon by the student and the Dean or designee will constitute a recommendation to the Honor Council, and must be supported by a written statement signed by the student and the dean or designee. The written statement will be reviewed by the Honor Council<sup>(7)</sup>, which shall inform both the student and the Dean or designee of the sanction imposed.

### Procedures: Resolution by an Honor Review

14. Cases not resolved in accordance with Part 10 of this *Code* shall result in an Honor Review.<sup>(8)</sup> An Honor Review is conducted by an Honor Board. The Board is convened by the Student Honor Council. It will normally consist of six persons, five of whom will be voting members. Determinations of the Honor Board will be by a majority vote (three votes or more). Honor Boards are selected as follows:
  - (a) Three students selected by the Student Honor Council from among its members. In the event the student accused of academic dishonesty is a graduate student, then at least two of the student members shall be graduate students.

- (b) Two faculty members selected in accordance with procedures established by the Vice President for Academic Affairs. In the event the student accused of academic dishonesty is a graduate student, then at least one of the persons selected shall be a regular member of the graduate faculty.
  - (c) The Honor Board shall have one non-voting member, who shall serve as the Presiding Officer. The Presiding Officer may be a student, faculty, or staff member of the University. The Presiding Officer will be selected by the Director of Student Conduct.

15. If the Vice President for Academic Affairs determines that the Student Honor Council or an Honor Board cannot be convened within a reasonable period of time after an accusation is made, the Vice President or a designee may review the case. If there is reasonable cause to believe that an act of academic dishonesty has occurred or has been attempted, the Vice President or designee will convene an ad hoc Honor Board by selecting and appointing two students and one faculty/staff member. Whenever possible, student members of ad hoc Honor Boards shall be members of the Student Honor Council. A non-voting presiding officer shall be appointed by the Director of Student Conduct.

16. The Campus Advocate or a designee shall serve as the Complainant at an Honor Review. The principal responsibilities of the Complainant are:
  - (a) To prepare a formal charge of academic dishonesty, and deliver it to the student and the Honor Board. The student will be deemed to have received such notice on the date of personal delivery, or if certified mail is used, on the date of delivery at the most recent address provided to the University by the student;
  - (b) To present the evidence and analysis upon which the charge is based to the Honor Board during the Honor Review;
  - (c) To perform such other duties as may be requested by the Student Honor Council or the Honor Board.

17. The charge of academic dishonesty serves to give a student a reasonable understanding of the act and circumstances to be considered by the Honor Board, thereby placing the student in a position to contribute in a meaningful way to the inquiry. It also serves to provide initial focus to that inquiry. It is not, however, a technical or legal document, and is not analogous to an indictment or other form of process. The charge may be modified as the discussion proceeds, as long as the accused student is accorded a reasonable opportunity to prepare a response.

18. The purpose of an Honor Review is to explore and investigate the incident giving rise to the appearance of academic dishonesty, and to reach an informed conclusion as to whether or not academic dishonesty occurred. In keeping with the ultimate premise and justification of academic life, the duty of all persons at an Honor Review is to assist in a thorough and honest exposition of all related facts.

The basic tenets of scholarship—full and willing disclosure, accuracy of statement, and intellectual integrity in hypothesis, in argument and in conclusion—must always take precedence over the temptation to gain a particular resolution of the case. An Honor Review is not in the character of a criminal or civil legal proceeding. It is not modeled on these adversarial systems; nor does it serve the same social functions. It is not a court or tribunal. Rather, it is an academic process unique to the community of scholars that comprise a university.

19. The role of the Presiding Officer is to exercise impartial control over the Honor Review in order to achieve an equitable, orderly, timely and efficient process. The Presiding Officer is authorized to make all decisions and rulings as are necessary and proper to achieve that end, including such decisions and rulings as pertain to scheduling and to the admissibility of evidence. If in the judgment of the Presiding Officer there is reasonable cause to question the impartiality of a board member, the Presiding Officer will so inform the Honor Council, which will reconstitute the board.

20. The Presiding Officer or designee will select the date, time and place for the Honor Review, and notify the student in writing a minimum of ten (10) days prior to the review.

21. The sequence of an Honor Review is necessarily controlled by the nature of the incident to be investigated and the character of the information to be examined. It thus lies within the judgment of the Presiding Officer to fashion the most reasonable approach. The following steps, however, have been found to be efficient, and are generally recommended:

- (a) Complainant, and then the student or the student's advocate, summarize the matter before the Honor Board, including any relevant information or arguments.
  - (b) The Complainant, and then the student, present and question persons having knowledge of the incident, and offer documents or other materials bearing on the case. The Complainant, the student and all members of the Honor Board may question any person giving testimony.
  - (c) The members of the Honor Board may ask the Complainant or the student any relevant questions. The members may also request any additional material or the appearance of other persons they deem appropriate.

- (d) The Complainant, and then the student or the student's advocate, may make brief closing statements.
  - (e) The Honor Board meets privately to discuss the case, and reaches a finding by a majority vote.
  - (f) The Honor Board will not conclude that a student has attempted or engaged in an act of academic dishonesty unless, after considering all the information before it, a majority of members believe that such a conclusion is supported by clear and convincing evidence. If this is not the case, the Honor Board will dismiss the charge of academic dishonesty.
  - (g) If the Honor Board finds the student has engaged in an act of academic dishonesty, both the Complainant and the student or the student's advocate, may recommend an appropriate sanction. Pertinent documents and other material may be offered. The Honor Board then meets privately to reach a decision, which must be by a majority vote of its members.
  - (h) The Presiding Officer will provide the Complainant and the student with a written report of the Honor Board's determination.
22. Role of Advocate and Advisor:
- (a) The accused student may be assisted by an advocate, who must be a registered, degree-seeking student at the University. The role of the advocate will be limited to:
    - I. Making brief opening and closing statements, as well as comments on appropriate sanction.
    - II. Suggesting relevant questions which the Presiding Officer may direct to witness.
    - III. Providing confidential advice to the student.
  - (b) The accused student may also be accompanied by an advisor, who may be an attorney. The role of the advisor during an Honor Review will be limited to providing confidential advice only to the accused student, not the advocate, provided such advice is given without interfering with or disrupting the Honor Review. Even if accompanied by an advocate and/or an advisor, the student must take an active and constructive role in the Honor Review. In particular, the student must fully cooperate with the Honor Board and respond to its inquiries without undue intrusion by an advocate or advisor. In consideration of the limited role of advocates and advisors, and of the compelling interest of the University to expeditiously conclude the matter, the work of an Honor Board will not, as a general practice, be delayed due to the unavailability of an advocate or an advisor.
  - (c) Honor Reviews may be tape recorded or transcribed. If a recording or transcription is not made, the decision of the honor board must include a summary of the testimony and shall be sufficiently detailed to permit review on appeal.
  - (d) Presence at an Honor Review lies within the judgment of the Presiding Officer. An Honor Review is a confidential investigation. It requires a deliberative and candid atmosphere, free from distraction. Accordingly, it is not open to the public or other "interested" persons. However, at the student's request, the Presiding Officer will permit a student's parents or spouse to observe and may permit a limited number of additional observers. The Presiding Officer may remove from the Honor Review any person who disrupts or impedes the investigation, or who fails to adhere to the rulings of the Presiding Officer. The Presiding Officer may direct that persons, other than the accused student or the Complainant, who are to be called upon to provide information, be excluded from the Honor Review except for that purpose. The members of the Honor Board may conduct private deliberations at such times and places as they deem proper.
  - (e) It is the responsibility of the person desiring the presence of a witness before an Honor Board to ensure that the witness appears. If necessary, a subpoena may be requested, in accordance with Part 34 (b) of the *Code of Student Conduct*.<sup>9</sup> Because experience has demonstrated that the actual appearance of an individual is of greater value than a written statement, the latter is discouraged and should not be used unless the individual cannot or reasonably should not be expected to appear. Any written statement must be dated, signed by the person making it, and witnessed by a University employee or by a person approved by the Director of Student Conduct (e.g., a notary). The work of an Honor Board will not, as a general practice, be delayed due to the unavailability of a witness.
  - (f) An Honor Review is not a trial. Formal rules of evidence commonly associated with a civil or criminal trial may be counterproductive in an academic investigatory proceeding, and shall not be applied. The Presiding Officer will accept for consideration all matters which reasonable persons would accept as having probative value in the conduct of their affairs. Unduly repetitious, irrelevant, or personally abusive material should be excluded.
23. If the Honor Board finds that an attempt or act of academic dishonesty did occur, it shall impose an appropriate sanction. The normal sanction for an undergraduate student shall be a grade of "XF" in the course. The normal sanction for a graduate student shall be dismissal (suspension

or expulsion) from the University. The Honor Board may impose a less or more severe sanction. Generally, acts involving advance planning, falsification of papers, conspiring with others, or some actual or potential harm to other students will merit a severe sanction, i.e. suspension or expulsion, even for a first offense. An attempt to commit an act shall be punished to the same extent as the consummated act.

## Appeals

24. In cases where an Honor Board has determined the appropriate sanction to be less than suspension or expulsion, both the finding of responsibility and the sanction(s) of an Honor Board will be final, unless, within 15 business days after the Board's written decision is sent to the student, and the Dean of the college where the incident occurred, the student or the Dean or designee notifies the Honor Council in writing of the intention of filing an appeal. The student may appeal both the findings and the penalty. The Dean or designee may appeal the penalty only.
- A written brief supporting any appeal must be submitted in writing to the Student Honor Council Executive Committee within an additional ten business days. The Executive Committee or designee will provide the opposing party a reasonable opportunity to make a written response.
25. Any member of the Executive Committee who has taken part in an Honor Review that is the subject of an appeal is not eligible to hear the appeal. Substitute Executive Committee members may be selected from experienced Honor Council members, appointed in accordance with Honor Council bylaws.
26. Decisions of the Executive Committee will be by majority vote, based upon the record of the original proceeding and upon written briefs. De novo hearings shall not be conducted.
27. Deference shall be given by the Executive Committee to the determinations of Honor Boards.
- (a) Sanctions may only be reduced if found to be grossly disproportionate to the offense. Likewise, upon an appeal by a Dean or designee, sanctions may be increased only if the original sanction is deemed to be grossly disproportionate to the offense.
  - (b) Cases may be remanded to a new Honor Board if specified procedural errors or errors in interpretation of this *Code* were so substantial as to effectively deny the accused student a fair hearing, or if new and significant evidence became available that could not have been discovered by a diligent respondent before or during the original Honor Board hearing. On remand, no indication or record of the previous hearing will be introduced or provided to the members of the new Honor Board, except to impeach contradictory testimony, at the discretion of the presiding officer.
  - (c) Cases may be dismissed only if the finding is held to be arbitrary and capricious.
28. If an Honor Board determines to suspend or expel a student, then the student may submit a written appeal to the Senate Committee on Student Conduct, in accordance with procedures set forth in Parts 43-48 of the *Code of Student Conduct*.
29. Regardless of whether an appeal is filed, suspension requires approval by the Vice President for Student Affairs, and may be altered, deferred, or withheld. Expulsion requires approval by the President, and may be altered, deferred, or withheld.
- ## The Grade of "XF"
30. The grade of "XF" is intended to denote a failure to accept and exhibit the fundamental value of academic honesty. The grade "XF" shall be recorded on the student's transcript with the notation "failure due to academic dishonesty". The grade "XF" shall be treated in the same way as an "F" for the purposes of grade point average, course repeatability, and determination of academic standing.
31. No student with an "XF" on the student's transcript shall be permitted to represent the University in any extracurricular activity, or run for or hold office in any student organization which is allowed to use University facilities, or which receives University funds.
32. The student may file a written petition to the Student Honor Council to have the grade of "XF" removed and permanently replaced with the grade of "F". The decision to remove the grade of "XF" and replace it with an "F" shall rest in the discretion and judgment of a majority of a quorum of the Council provided that:
- (a) At the time the petition is received, at least twelve months shall have elapsed since the grade of "XF" was imposed; and,
  - (b) At the time the petition is received, the student shall have successfully completed a non-credit seminar on academic integrity, as administered by the Office of Student Conduct; or, for the person no longer enrolled at the University, an equivalent activity as determined by the Office of Student Conduct; and,
  - (c) The Office of Student Conduct certifies that to the best of its knowledge the student has not been found responsible for any other act of academic dishonesty or similar disciplinary offense at the University of Maryland or another institution.

33. Prior to deciding a petition, the Honor Council will review the record of the case and consult with the Director of Student Conduct. Generally, the grade of "XF" ought not to be removed if awarded for an act of academic dishonesty requiring significant premeditation. If the "XF" grade is removed, records of the incident may be voided in accordance with Parts 50 and 51 of the *Code of Student Conduct*. The decision of the Honor Council shall not be subject to subsequent Honor Council review for four years, unless the Honor Council specifies an earlier date on which the petition may be reconsidered. Honor Council determinations pertaining to the removal of the "XF" grade penalty may be appealed to the Vice President for Academic Affairs. If the Vice President removes the grade of "XF" from the student's transcript, the Vice President shall provide written reasons to the Honor Council.

### The Student Honor Council

34. There shall be a Student Honor Council. The Honor Council is composed of qualified graduate and undergraduate students in good academic standing, normally appointed in the Spring for the following academic year, and who may each be reappointed for additional one year terms.<sup>(10)</sup>

35. The members of the Honor Council are appointed by a committee consisting of the Vice President for Academic Affairs, the Vice President for Student Affairs, the Chair of the Graduate Student Association, the President of the Student Government Association, and the Chair of the Honor Council.

36. All council members are subject to the training and conduct requirements of Parts 26 and 27 of the *Code of Student Conduct*.

37. The Student Honor Council has the following responsibilities and authority:

- (a) To increase awareness throughout the campus of the importance of academic integrity.
- (b) To develop bylaws subject to approval by the University for legal sufficiency and consistency with the requirements of this *Code of Academic Integrity*, and the *Code of Student Conduct*.
- (c) To designate from its members students to serve as members of Honor Boards as specified in this *Code*.
- (d) To consider petitions for the removal of the grade of "XF" from University records in accordance with Part 29 of this *Code*.
- (e) To receive complaints or reports of academic dishonesty from any source.
- (f) To assist in the design and teaching of the non-credit seminar on academic integrity and moral development, as determined by the Director of Student Conduct.
- (g) To advise and consult with faculty and administrative officers on matters pertaining to academic integrity at the University.
- (h) To issue an annual report to the Campus Senate on academic integrity standards, policies, and procedures, including recommendations for appropriate changes.

38. The campus administration shall provide an appropriate facility, reserved for the primary use of the Honor Council, and suitable for the conduct of hearings. Clerical and secretarial assistance will also be provided.

### Future Self Governance

39. Insofar as academic dishonesty is most immediately injurious to the student body, and because the student body is in a unique position to challenge and deter it, it is the intent of the University that ultimately this *Code* will evolve into one where the provisions are marked by complete student administration.

### Terms

**AD HOC HONOR BOARD**—board consisting of two students and one faculty member appointed by the Vice President for Academic Affairs, and a Presiding Officer appointed by the Director of Student Conduct.

**ACADEMIC DISHONESTY**—see Part 1 of this *Code*.

**CHARGE OF ACADEMIC DISHONESTY**—a formal description of the case being considered by the Honor Board.

**CLEAR AND CONVINCING EVIDENCE**—that evidence which results in reasonable certainty of the truth of the ultimate fact in controversy. It requires more than a preponderance of the evidence but less than proof beyond a reasonable doubt. Clear and convincing evidence will be shown where the truth of the facts asserted is highly probable.

**EXECUTIVE COMMITTEE**—a committee of Honor Council officers, selected in accordance with Honor Council bylaws.

**HONOR BOARD**—body appointed by the Student Honor Council to hear and resolve a case of academic dishonesty. The board consists of five voting members (three student members of the Honor Council and two faculty members).

**HONOR REVIEW**—the process leading to resolution of an academic dishonesty case.

**COMPLAINANT**—officer responsible for preparing the charge of academic dishonesty and presenting the case before the Honor Board. The Complainant must be a registered, degree-seeking student.

**PRESIDING OFFICER**—individual on the Honor Board responsible for directing proceedings during the Honor Review. The presiding officer is a non-voting member of the Honor Board selected by the Director of Student Conduct.

**STUDENT HONOR COUNCIL**—students appointed by the Vice Presidents for Academic and Student Affairs, as well as by the President of the Student Government Association, the Chair of the Graduate Student Association, and the Chair of the Honor Council.

### Footnotes

- {1} The Dean's notice shall be maintained in a file of self-referrals, but shall not be considered a disciplinary record.
- {2} Pertinent procedures for determining reasonable cause shall be set forth in the Honor Council bylaws.
- {3} Cases involving graduate students should be reported to the Dean of the Graduate School.
- {4} It is recommended that the meeting be held within ten business days after receipt of the Honor Council report by the Dean.
- {5} The statement shall include a reference to the right to be represented by an advocate, as specified in Part 18(a) of this *Code*.
- {6} In every case the Dean or designee shall check with the Office of Student Conduct to determine if a prior record exists.
- {7} The term "Honor Council," used throughout the *Code*, permits reliance upon Honor Council committees, appointed in accordance with Council bylaws.
- {8} Statements made by the parties in informal settlement discussions shall not be considered by the Honor Council. However, a student who provides false information to the Dean or designee or the Honor Council may be charged with a violation of the University *Code of Student Conduct*.
- {9} Before issuing a subpoena, the Director of Student Conduct may require that a party requesting the subpoena make a reasonable effort to secure voluntary compliance by a potential witness.
- {10} The screening committee shall try to create a broadly based Honor Council that reflects the diversity of the campus, and is of sufficient size to resolve cases as promptly as possible.

The determination whether an Honor Council applicant is "qualified" rests within the discretion of the selection committee, provided that no uniform grade point "cutoff" is applied. A history of disciplinary or felonious misconduct may be sufficient grounds to disqualify any candidate.